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ABSTRACT

This study examines the role of external funding in the development of public library network resources and services, their identification, and their benefit and impact, particularly as they affect the digital divide. The study was conducted between February 2001 and January 2002, employing a range of data collection techniques, including site visits, focus groups, surveys analysis of E-rate data sources, local library and state library reports, documents from external funders, and other material. Key findings and issues include: (1) LSTA (Library Services and Technology Act) is a model federal program for funding libraries; (2) E-rate funding is essential to local operations, but needs fine-tuning; (3) leveraging external support to serve those impacted by the digital divide; (4) equipment was not enough; (5) coordination was necessary and the State Library delivered; (6) someone must have authority and responsibility for seeking external funds; (7) remembering the poorest counties and communities; (8) maintaining sustainability; and (9) understanding situational factors. Conclusions, next steps, and recommendations are presented. Appendices include LSTA state plan requirements and assurances, SLD (Schools and Libraries Division) analysis method and description of tables, site visit participants, selected study instruments, and advisory committee members. (Contains 75 references.) (MES)

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Information Use Management and Policy Institute

PUBLIC LIBRARY INTERNET SERVICES AND THE DIGITAL DIVIDE:

The Role and Impacts from Selected External Funding Sources

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EXECUTIVE SUMMARY

Over the past five years, many public libraries have come to rely on sometimes small, but critically important, external sources of funding to establish and maintain their technology infrastructure, telecommunications services, and network-based resources and services. These external funding sources may be from the government such as the federal Library Services and Technology Act (LSTA) Grants to State Library Agencies, and the E-rate program, or other federal, state, and local government programs. In addition, non-governmental sources of external funding such as the Bill and Melinda Gates Foundation U.S. Library Program play a key role. External funding is particularly vital to enable public libraries to address the potential for a digital divide in their communities.

Significant during this period was public library use of sources of external funding in combination, rather than in isolation, to leverage outcomes far greater than any single source could achieve. Public libraries engaged in significant experimentation and innovation in information services development. Indeed, public librarians successfully leveraged these external funds to:

- Offer new networked-based programs and services;
- Obtain additional resources and support for their libraries;
- Better integrate themselves into the local community's information infrastructure;
- Encourage economic development; and
- Increase the visibility and credibility of the public library as "the information place" in their community.

Often the external funds used comprised only 1-3% of the library's budget. Yet such funds allowed public libraries to experiment, innovate, and demonstrate how Internet services could be deployed and how such services could be of benefit to all members in the communities that libraries serve.

Study's Purpose

The present study is the first systematic effort to better understand the role of external funding in the development of public library network resources and services, their identification, and their benefit and impact, particularly as they affect the digital divide. The study investigates:

- What role did key external funding sources, state libraries and public libraries play in the development of public library technology infrastructure, telecommunications services, and network-based resources and services, and address a potential for a digital divide in their communities?
- What common network resources and services did public libraries develop? What were their impact and benefit?
- What next steps do state and public libraries plan that may benefit from external funding?

Study results can assist external funders, state and federal policy makers, the public library community and others interested in the future of public libraries to:

- Identify key policy issues related to the digital divide, particularly Universal Service and equitable access to networked information resources and services in the United States;
- Provide an assessment of the roles public libraries play in the digital divide, and the impact of those roles on the communities the libraries serve;
- Provide a sense of the impacts and benefits communities derive from public library Internet connectivity and services;
- Identify the role of E-rate discounts and other funding sources in library services and technology planning activities;
- Provide a better understanding of how these awards are being used by libraries;
- Provide a better understanding of the E-rate application and disbursement process;
- Assist policy makers to determine how best to refine various Universal Service policy goals through programs such as the E-Rate and LSTA in relation to the digital divide; and
- Assess systematically the relationship between various funding programs and Internet services.

The authors conducted this study between February 2001 and January 2002 employing a range of data collection techniques including site visits, focus groups, surveys analysis of E-rate data sources, local library and state library reports, documents from external funders, and other material.

THE CURRENT CONTEXT

Public libraries reside in an increasingly complex technology environment – one that requires constant innovation in service provision as well as innovation in building and maintaining a technology infrastructure through which to provide network-based services. During the last five years, public libraries have made significant gains in obtaining, deploying, and using a range of Internet and telecommunications hardware, software, and services. These advances, due in part to the leveraging by public libraries of a number of external funding sources, enabled public libraries to build upon their existing infrastructure in ways that would otherwise not have been possible.

The recent digital divide studies conducted by the U.S. Department of Commerce, National Telecommunications and Information Administration (1995, 1998, 1999, 2000, and 2002) identify segments of the U.S. population that are less likely to have access to networked information services and resources in the home. These populations tend to be minority, less educated and lower income. A key question in the digital divide is what community access centers – such as the public library – do to provide those "have-nots" with critical access to technology and technology-based resources.

Findings and Key Issues

The findings from this study support keeping the momentum going on what is a very promising start to the introduction of a new digital age in U.S. public libraries and the communities that they serve. Key findings include:

LSTA is a model federal program for funding libraries. Participants indicated that LSTA Grants to State Library Agencies funding, guided by the Institute for Museum and Library Services (IMLS) and managed at the state level by state libraries, works well overall. The principal improvement suggested was to fund adequately what has been by all accounts a very successful and beneficial program. Significant was that study participants suggested only minor changes (such as a possible add of construction/renovation funds if there was an overall, substantial funding increase). There was widespread support among study participants for the American Library Association's (ALA) and Chief Officer's of State Library Administrators' (COSLA) efforts to secure additional funding and their suggested changes.

E-rate funding is essential to local operations, but needs fine-tuning. Most library managers agreed that the E-rate initiative was targeted to assist with crucial operating expenses – Internet and telecommunications charges, wiring and basic network equipment. But the program's procedures need attention including:

- Simplify the application process. Most library managers found the process to be a "nightmare," overly "cumbersome," unnecessarily "complicated and unending." They also felt the process failed to recognize the public library's unique mission, distinct from schools, in its community.
- Increase efforts to get clear and accurate information to the library community. Improve involvement of state libraries, consortia, and library systems to achieve this;
- Increase public library participation, in particular, adjust library eligibility requirements to participate in internal wiring and network equipment portions of the program; and
- Find a way to fund support for libraries with neither the staff, time, nor technical expertise to successfully complete the application process.

Participants indicated a need for the E-rate program to allow a different approach, including application process and criteria, for public libraries than for public schools. As public libraries differed in significant ways from public schools in areas such as mission, who they serve, hours or operation, and overall funding-related issues, it is inappropriate to treat them equally in the application, review and award process.

Leveraging external support to serve those impacted by the digital divide. It is clear that no single funding source by itself would have successfully introduced a public library Internet service as rapidly and effectively unless that funding source was leveraged with others. Fortunately, with the assistance of state libraries, funds were leveraged to create an information and technology infrastructure capable of delivering a sustained service rather than a piece of equipment to the public. Furthermore, present evidence suggests that no organization, no matter how deep the pockets, can fund by itself the type of effort necessary to make the future incremental improvements in library Internet services. Future funding in this area needs to be flexibly designed to promote leveraging -- the model LSTA's Grants to State Library Agencies. Future external funding programs seeking to have successful state or national reach must actively engage the state libraries as partners to coordinate leveraging and support programmatic goals.

Equipment was not enough. Public library managers and funders learned as they implemented Internet services that installing a piece of equipment was not enough. Rather, a

means had to be found to embed an information infrastructure around the new technology to enable a sustained service. It was necessary to leverage different funding sources to rework technology, collections, their organization, types of public service, public training, promotion of these activities, increase staff or change their function, train staff, finance, manage, and evaluate the new service. It was important to coordinate the identification and strategic funding of each information infrastructure element.

Coordination was necessary and the State Library delivered. There was a need for some entity to step in and coordinate, influence or nudge funding for public library Internet services in the appropriate direction. Many state libraries took on these roles and did so without much reward – a concern that should be addressed by external funders in the future. Consortia and library systems played significant roles as well, particularly when state libraries with limited resources were overwhelmed. Leveraging of external funds cannot work well without early State library involvement and support for that involvement.

Someone must have authority and responsibility for seeking external funds. Clearly, there is untapped support within local communities, governments, and the private sector for public library Internet services. The support may be in cash, but it also may be in a range of creative and/or equitable partnerships. It is imperative for the public library community to identify the next extraordinarily generous Bill and Melinda Gates Foundation, particularly as the computers first received through the generosity of the Foundation are now in need of upgrades.

Remembering the poorest counties and communities. In addition to small libraries and urban branches, there is a need to focus attention on the poorest counties and communities in the U.S. It is one thing to design programs that work for most. It is another task to go back and ensure that the intended benefits of a program have reached those who are most in need, often despite programmatic design, regulations, and procedures.

Maintaining sustainability. While the Gates Foundation must be applauded for its ambitious, generous and important work in assisting public libraries enter the networked environment and address digital divide issues, who will be the next Gates in 2003 remains unclear. Between 1998-2001 a vast number of public libraries were able to obtain and upgrade information technology and training that would not have otherwise been available to them. In 2003 (or sooner) all that equipment will need to be replaced or upgraded, and ongoing train needs will persist.

Understanding situational factors. Numerous factors combine to shape the overall effectiveness of programs such as LSTA, E-rate, and the Gates Fund support. Situational factors occur at a variety of levels that influence funding. They occur at the funding level in how the funds are requested, awarded, and regulated. They occur at the State library level, for example, in terms of personnel, or agency commitment/interest in a particular program. They occur at the local library level in terms of organizational structure, information technology infrastructure, and personnel. Finally, they occur at the community level in terms of local community demographics, form of government, interest in and support for the library, etc. In addition, more research is needed to better understand what combinations of funding programs, State library assistance, local library involvement, and community composition results in the greatest.

External funders must address these and other situational factors. Successful funders – notably the Gates Fund and the LSTA Grants to State Library Agencies – used three strategies. First, successful external funders recognized that many situational factors could only be recognized and addressed during implementation so they built in internal and external evaluation mechanisms. Second, they designed their program with the goal clear but the detail flexible so as to take advantage of what the evaluative process revealed. Third, wherever possible, they listened to and trusted the judgment of their public library partners.

Making the Case for Public Libraries

The findings from the study suggest that there are numerous topics and research questions requiring additional attention. To some degree, the research reported here is a first effort to assess how externally funded programs (LSTA, E-Rate, Gates Fund, and others) have contributed to public libraries' ability to address digital divide issues. This research, however, is but a "snapshot" of benefits and impacts resulting from these external funds during 2000-2001. There is much to learn by conducting such assessments, yet the basic need is to establish a regular *program* of national assessment for such funding initiatives. The Information Institute at the School of Information Studies, Florida State University plans to continue research and data collection efforts and establish a clearinghouse for such information.

The public library community needs to initiate a public discussion and debate about how best to assess the benefits and impacts resulting from external funding programs such as those discussed in this report. This would include agreement on standards and performance indicators for assessing such programs, discussions on how such benefits and impacts contribute to addressing digital divide issues, and determination as to what criteria facilitate the assessment of national policy initiatives and funding programs related to public libraries. Ultimately, there is a need for ongoing evidence and data to assess and refine these programs. The better, more sustained and systematic the assessment, the better the program in terms of its efficiency and ability to achieve its objectives. This, in turn, contributes to sustaining the notion that public libraries are a good place to invest scare resources in the future.

Next Steps

The authors see this study as a first step on a longer journey to continue efforts to (1) update and improve the information technology infrastructure in public libraries; (2) better coordinate efforts among the federal government, other funders, state libraries and state government, and local libraries and consortia to maximize the impact and benefit from various external funding programs; and (3) improve public library networked and Internet services to better serve those who reside in the digital divide.

Equally important is to marshal resources at the policy level to make certain that those making federal and state policy understand the importance and impact of LSTA, E-rate, and related programs. Findings from the study described here not only document the importance and impact from these programs; they also offer recommendations for how to improve such programs to have even greater impact on public libraries. LSTA and E-rate, especially, need to

be expanded, fine-tuned, and better supported so that public libraries can continue to serve as a key means for mitigating the digital divide.

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Then there is also the staff at the state libraries in Colorado, Pennsylvania, Florida, and Michigan who helped to organize numerous meetings, interviews, and focus groups. The state librarians in these states (respectively), Nancy Bolt, Gary Wolfe, Barratt Wilkins, and Christie Brandau, provided staff and other assistance during the site visits, as well as in other aspects of the study, making our work much easier. Others at the state libraries such as Keith Lance and Gene Hainer (CO), Barbara Cole and Jim Hollinger (PA), Mark Flynn (FL) and Sheryl Mase (MI) deserve a special note of thanks.

We also want to thank the members of our Advisory Committee for their assistance, suggestions, and time during the study. They include: Beverly Cholteo-Devlin, Barbara W. Cole, Mark W. Flynn, Keith Curry Lance, Nancy Laskowski, Anne Silvers Lee, Mary Jo Lynch, Amy Owen, Eileen M. Palmer, Charlie Parker, Pat Wallace, and Rick Weingarten.

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Finally, a word of praise for the external funders, who are the focus of this study and have supported public library Internet development. As shown in this study, this external support from a number of programs funded by the U.S. government, from state government, the Bill and Melinda Gates Foundation, and other sources were essential for public libraries to have made the gains they have in providing Internet services.

While the authors gratefully acknowledge all the various people and organizations that contributed to the completion of the project, the responsibility for the report belongs to us. Specifically, the research and points of view expressed in this report are those of the authors and do not represent the official position or policies of the sponsoring organizations.

We realize there is still considerable room for debate and discussion of the findings and recommendations offered in this report. Clearly, there is a significant range of Internet and telecommunication impacts and benefits in public libraries. This evolution (or perhaps revolution) of public libraries in terms of their Internet services, and the role of external funding in making this happen, is exciting and significant. We look forward to working with others as public libraries continue to evolve in this networked environment and as external funding programs continue to support this growth and development.

Charles R. McClure
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January 2002

CHAPTER 1: INTRODUCTION

From 1997-2001, public libraries in the United States made a significant advance in obtaining and deploying network and telecommunications technology. Public libraries, with critical external support, began making delivery on the promise of the Internet to revolutionize the provision of information and services to all people and all types of communities throughout the U.S. These technologies now serve as a basis or core for a range of library services and resources that simply were not available 10 years ago. Many of the innovative network services occurred because of the imaginative and leveraged use of key external funding programs such as the Library Services and Construction Act (LSCA), E-rate, the Bill and Melinda Gates Foundation, and other private, federal, state, and local sources.

This report draws upon a range of data that describe the innovative uses, the manner in which these external funding sources were leveraged, impacts and benefits from the funds, and the ways in which these funding sources contributed to extending public library network services. The report also makes suggestions for how to enhance these programs.

Key External Funders Covered

The deployment of public library Internet services would not have occurred without leveraged external funding from many sources. This report focuses attention on the role of the three principal, national-level, external funders of public library Internet services: Library Services and Technology Act (LSTA),[1] E-rate,[2] and the Bill and Melinda Gates Foundation U.S. Libraries Program (hence forth the Gates Fund).[3]

Library Services and Technology Act (LSTA) Grants to State Library Agencies

The Library Services and Technology Act (LSTA) was embedded in the Museum and Library Services Act of 1996 (P.L.104-208, H.R. 3610). LSTA, and its earlier versions, the Library Services Act (LSA) and the Library Services and Construction Act (LSCA), have provided the longest running most important federal support of public libraries to date. LSTA's focus is to encourage the use of information technology in libraries and to empower under-served and diverse populations. The Institute of Museum and Library Services (IMLS) administer LSTA.[4] The LSTA Grants to State Library Agencies program, the focus of this study, provided libraries with nearly $558 million during the period 1998-2001.

[1] See IMLS. <http:www.imls.gov/>.
[2] See E-rate <http://www.sl.universalservice.org/>.
[3] See Gates Fund. <http://www.gatesfoundation.org/libraries/uslibraryprogram/default.htm>.
[4] IMLS administers a number of programs supporting libraries of all types, museums and library-museum partnerships. Library specific funding administered by IMLS includes: grants to state library agencies, Native American library services grants, Native Hawaiian library services grants, national leadership grants for libraries, and the national award for library service. The focus of this study is one of these programs, the Grants to State Library Agencies and the use of that funding with public libraries (although the funding is also used by other types of libraries).

E-rate

The Telecommunications Act of 1996 (P.L. 104-104) (U.S. Senate, 1996) laid the groundwork for the establishment of the E-rate – a means by which the federal government would provide discounts to reimburse schools and libraries for various types of expenditures related to connecting to and using the Internet – as one means through which to guard against a digital divide fostered by technology "haves" and "have-nots." As of November 2001, some $7.65 billion in discounts has been committed to reimburse schools and libraries based on applications filed by these schools and libraries,[5] of which only an estimated 3-4% has gone to libraries.[6] This study focuses on E-rate discounts provided to libraries.[7] Indeed, this report may be the first study to consider E-rate's role in the provision of public library Internet services on a national level.

Bill and Melinda Gates Foundation

The Bill & Melinda Gates Foundation U.S. Library Program started in 1997 with the goal of expanding public access to computers, the Internet and digital information in State library certified public libraries that serve low-income communities. The Gates Fund has been the principal private funder of public library Internet service development spending $109,141, 929 as of November 2001,[8] with a total investment of $250 million projected by the end of 2003.[9]

Previous Work by the Study Team

The study reported here builds upon previous research conducted by the authors and funded by the American Library Association, Washington Office (McClure and Bertot, 2000a, 2000b). These previous efforts intended to determine the feasibility of assessing the benefits and impacts from various funding sources on the role that public libraries played in addressing digital divide issues. Based on the research completed through 2000, the following *preliminary* findings resulted from that earlier work:

- 1998-2000 was a unique time period for public library information technology infrastructure development because of the E-rate, LSTA, and the Gates Foundation awards: E-rate promoted infrastructure and telecommunications, LSTA promoted program development, and Gates provided necessary hardware and software. The combined and concurrent significance of these three programs has, as one library director commented, "had an unparalleled impact on improving our library."

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[5] See <http://www.sl.universalservice.org/apply/fcyear2/national.asp> for details.

[6] See: Universal Service Administrative Company (USAC). (2000). Funding commitments by rural urban statistics and entity type. Annual Report. p. 38.

[7] For studies assessing the E-rate on schools see, for example, U.S. Department of Education (2000) and Benton Foundation (2001).

[8] From Gates web page: http://www.gatesfoundation.org/libraries/grants/default1.htm Microsoft software contribution is probably not included in this total.

[9] Bill & Melinda Gates Foundation U.S. Library Program. (2001, February 21). Press release. <http://www.gatesfoundation.org/pressroom/release.asp?PRindex=352>

- Local libraries to make substantial gains in the library's information technology infrastructure, and networked-based services and resources have leveraged the E-rate, LSTA, Gates awards, and local resources.
- These various programs have spawned a number of new and innovative partnerships between public libraries and other organizations in the provision of computer and networked-based services.
- Were it not for the E-rate awards, many libraries would not have been able to upgrade their infrastructure, expand access to networked services in the library's community, or otherwise support a range of applications since local money could not otherwise have been obtained for such purposes.
- These programs (and especially the E-rate) while frequently constituting only 1% or less of the library's budget provided discretionary money and significant flexibility that could not otherwise be obtained from local funds.
- Although the difficulty of the process and procedures for obtaining E-rate awards was often described as "onerous and abnormally time consuming," most participants were willing to spend the staff time to obtain the awards. There are, however, significant improvements needed in the application process, the forms, and the overall program procedures.
- A range of data sources from local public libraries, state libraries, the School Library Division E-rate data base, and other sources can assist in determining the benefits and impacts of various public library funding sources on digital divide issues, justifying the completion of a comprehensive study [reported here].
- There is considerable concern that these (or additional/replacement) programs continue for future technology upgrades and program development.

Previous research, including a number of national surveys conducted by the authors (Bertot and McClure, 1999, 2000, and 2002), suggested the important relationships among these various funding programs and the degree to which public libraries have been able to leverage successfully those sources against each other and with other organizations. Moreover, the previous work demonstrated the feasibility for conducting the study that is reported here.

Study Goals

The purpose of the current research effort is to assist the public library community, state and federal policy makers, and others interested in the future of public libraries to assess the impact and benefits of selected funding sources on Internet connectivity in public libraries. More specifically, the goals were to:

- Obtain assessments from public and state librarians, community users, and others as to the impacts and benefits derived from Internet connectivity and services and, to the extent possible, the impacts provided by the various types of funding mechanism available to the libraries for Internet-based services;
- Provide a composite overview of the benefits and impacts from Internet connectivity and services for public libraries;
- Assess the impacts and benefits that the communities and selected community groups that public libraries serve derive from public library-based Internet connectivity and services;

- Identify the key funding mechanisms for public library Internet connectivity at the national, state, and local levels;
- Determine if it is possible to identify which funding sources provided what public library Internet services, resources, and infrastructure;
- Identify and analyze the types of requests for funding from public libraries from E-rate resources;
- Offer recommendations that will assist the public library community, state and federal policy makers, users, and others track ongoing uses of E-rate discounts and other Internet connectivity funding mechanisms, and track the benefits derived through those funding sources; and
- Inform the public library community and state and federal policy makers about the uses, impacts, benefits, and issues related to Internet connectivity (by funding mechanism, if possible) for public libraries.

Overall, the intent of this study is to assist various stakeholder groups better understand the role, impact, and uses of the Internet in the public library environment, selected Internet-based services, and selected funding mechanisms for Internet connectivity in the public library community.

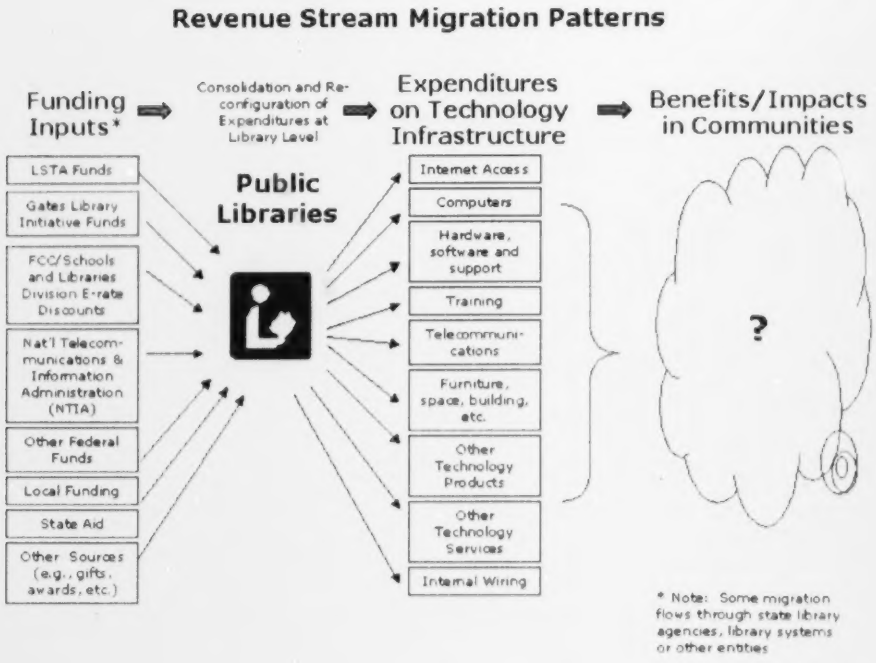
Study Approach

The study relied on a multi-stage approach that began February 2001 and ended January 31, 2002. Overall, it is possible to group the study data collection activities into four parts:

1. **Inputs**. Reviewed the inputs or funding sources (e.g., E-rate, Gates, LSTA, etc.) that go into public library Internet connectivity.
2. **Expenditures**. Assessed Internet connectivity expenditures for public library Internet connectivity at the State library, consortia, and individual public library level.
3. **Specific services**. Identified the types and nature of public library Internet services and the impacts and benefits of those services on both public libraries and the communities that the public libraries serve. The researchers attempted to parse out which funding streams go to provide which public library Internet connectivity services (e.g., telecommunications, equipment, services, and resources).
4. **Impacts and benefits**. Identified and described impacts and benefits that have resulted from E-Rate, LSTA, the Gates Foundation awards, and other programs and attempted to link those benefits and impacts to specific programs.

Figure 1.1, Revenue Stream Migration Patterns is a model depicting possible relationships among funding inputs and impacts/benefits. This model provided an initial framework for organizing the study and developing a range of data collection instruments.

FIGURE 1.1 Revenue Stream Migration Patterns



Throughout the study, the researchers relied on multiple qualitative and quantitative data collection techniques such as focus groups, interviews, surveys, and case studies. Specific steps in the methodologies and data collection activities were based upon proven research approaches and strategies that ensure valid and reliable data (e.g., Rossi and Freeman, 1993; Krueger and Casey, 2000; Creswell, 1994). More specifically, the study used a multi-method and iterative learning strategy through which the researchers tested and developed tools for the study's data collection activities. Table 1.1 provides a summary of the types of research topics, research questions, and data sources that guided the study in terms of various data collection activities. The range of these research questions was ambitious and not all of the research questions ultimately were addressed (see findings and recommendations in Chapters 2, 3, and 4).

The study profited by the assistance of an advisory committee and from a liaison at the American Library Association's Washington Office, Office of Information Technology and Policy. This person served as a single point of contact for the research team and had the following responsibilities:

- Provided assistance to the research team in identifying key contacts and introducing them to the study team regarding data collection;

- Handled logistics related to meetings between the research team and the advisory committee, and with others as needed;
- Participated in data collection activities; and
- Worked with the research team to obtain various data sets related to the project from the Schools and Libraries Division (SLD) of the Universal Service Administrative Company (USAC), State libraries, and others as needed.

The advisory committee included about a dozen individuals and represented a broad range of interests and knowledge related to the study topics.[10] They offered advice on project activities and data collection instruments, provided project advice, and assisted in the evaluation of the study. The advisory committee participated primarily via e-mail and individual interactions with the study team members. There were meetings of the advisory committee held in conjunction with various professional meetings.

The study was completed in the following phases:

Phase I: Study preparation, detailing study tasking, establishing the advisory committee, and initiating the review of related information and literature (February-March).

Phase II: Additional analysis of SLD data, obtaining data from the SLD E-rate database, assessing that data, and reporting findings from that analysis (February – November).

Phase III: Preparation and actual site visits to four states and follow-up interviews as needed (May-August).

Phase IV: Analysis of site visit data and SLD E-rate database analysis (September-November).

Phase V: Completion of the draft final report and the final report (December – January 2002).

The overview of study phases and activities does not discuss a number of difficulties encountered in obtaining and analyzing data from the E-rate database at the SLD and the logistics related to conducting the site visits in four states.

[10] See Appendix E for a list of Advisory Committee members.

Table 1.1. Proposed Study Research Areas, Research Questions, and Data.

Research Area	Research Questions	Type of Data
Library Organization and Management	• What is the effect of Internet connectivity on library staff? • What are the core skills necessary for librarians to work effectively in the networked environment? • How are libraries organizing/reorganizing as a result of the transition to the networked environment? • Does the provision of networked services in libraries require new management and service provision techniques? • What is the impact of the Internet on library strategic and/or other planning activities? • Does the networked environment offer/determine new roles for libraries? • Are new library/community organization partnerships developing as a result of library Internet connectivity? • What are the costs to libraries for providing network-based services? • Does the networked environment enable new library services? • Is there a shift in the *location* of library services (e.g., in-library v. remote)? • Does provision of network-based services require new library-user policies?	• Staff time, effort, workload changes • Necessary MLS and continuing education training • New organizational structures/models for management • Partnerships, collaborative models • New services/service delivery mechanisms • Planning and role setting • Costs, budgetary issues • Acceptable use policies, minor use, ADA compliance
Social Impacts	• What are the benefits users and/or particular user segments (e.g., youth, seniors, others) derive through library Internet connectivity and access to network services? • How does the larger library community (e.g., local organizations, and schools) benefit from library Internet connectivity?	• Benefits/impacts of public access Internet services on users • Benefits/impacts of library Internet services/connectivity on the community
National Policy Implications	• What national policies exist to support library Internet connectivity and network services provision (e.g., LSTA, E-rate)? • To what extent do existing national policies address the *actual* needs of libraries in the networked environment as identified through data from this study? • To what extent do libraries (as opposed to other types of institutions) benefit from existing national programs to support Internet connectivity (e.g., E-rate)? • Are there other models for developing and/or enhancing library Internet connectivity from which national policy can learn (e.g., Gates, state initiatives)? • Are policy changes necessary to *best* support library Internet connectivity and network services provision?	• Assessment of key national, state, and other connectivity programs and the benefits/issues of those programs • Assessment of the benefits derived by libraries from the existing national connectivity programs • Determination of the appropriateness of national Internet connectivity programs given the state of library Internet connectivity and network service provision • Identification of recommendations for changes to national policies
Existing Data Analysis (see http://www.sl.universalservice.org/apply/fcyear2/national.asp for example analysis)	• What states (regions, Congressional districts, cities, etc.) have received what amounts of money? • How much of the disbursements have gone to communities with what poverty levels? • What general types of categories of expenses have been supported by the disbursements? • What types of libraries, size of libraries, library consortia have received disbursements?	• Various cross-tabs that compare amounts of disbursements by community type, by organizational affiliation, etc. • Average disbursement for type of community, size of community, type organizational affiliation, etc. • Disbursements by library type, library size, other key library demographics

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Issues in Method

There were a number of methodological and other issues associated with the study that are important to note:

- **Co-mingling of resources that support Internet/telecommunications efforts in public libraries**. The degree to which it is possible to attribute *direct* impacts and benefits of Internet services in public libraries to the various sources of funding was and is problematic. Public libraries receive external support for Internet-based and other technology-related services through E-rate, LSTA, Gates Fund, and/or state-based initiatives.
- **Availability of data**. There are several data collection efforts underway and/or data sets that were available for analysis purposes. These data sets (e.g., SLD, Gates, NTIA, etc.) often times were non-comparable and upon examination, were quite difficult to manipulate.
- **Other evaluations**. The Department of Education conducted an evaluation of the E-rate as the discounts relate to schools during this study. Members of the study team provided assistance to this effort regarding data collection for school and public libraries. More recently, the Benton Foundation issued a study *Great Expectations: The E-rate at Five* (2001) which did not address the role of libraries in E-rate. The study team found it was quite difficult to relate the research activities of these (and other) evaluation efforts in determining the broadest impact picture of the E-rate discounts.
- **Evolving policy environment**. The various federal programs have seen a number of developments and changes since passage of the Telecommunications Act of 1996. Additional changes occurred in the procedures for distributing E-rate disbursements, policy related to the E-rate program, or changes made in the organizational structure for the SLD. Similar changes occurred and are likely to occur in the future regarding LSTA and awards from the Gates Foundation.

In short, the findings are based upon a snap shot of the environment related to public library Internet expenditures during the Summer and Fall of 2001. Additional research (see Chapter 5) will be needed to update the snapshot as reported here.

Benefits and Importance of the Study

The recent digital divide studies conducted by NTIA (U.S. Department of Commerce, National Telecommunications and Information Administration, 1995, 1998, 1999, 2000, 2002) identifies segments of the U.S. population that are less likely to have access to networked information services and resources in the home. These populations tend to be minority, less educated, and lower income. A key question in the digital divide discussion is what community access centers – such as the public library – do to provide those "have nots" with critical access to technology, training in its use, and technology-based services. Moreover, there has not been a systematic study of the *specific* services that public libraries provide in the networked environment and the impacts and benefits of those services on the digital divide.

The assessment of the uses and results from the various Internet funding programs as reported in this study can:

- Identify key policy issues related to the digital divide, particularly Universal Service and equitable access to networked information resources and services in the United States;
- Provide an assessment of the roles public libraries play in closing the digital divide, and the impact of those roles on the communities the libraries serve;
- Provide a sense of the impacts and benefits communities derive from public library Internet connectivity and services;
- Identify the role of E-rate discounts and other funding sources in library services and technology planning activities;
- Provide a better understanding of how these awards are being used by libraries;
- Provide a better understanding of the E-rate application and disbursement process;
- Assist policy makers to determine how best to refine various Universal Service policy goals through programs such as the E-Rate and LSTA in relation to the digital divide; and
- Assess the relationship between various funding programs and Internet services.

The findings offer lessons from the various public library Internet programs that can continue to improve overall public library connectivity, services, and use of the Internet – at the local, state, and national levels.

In addition, study results can be used to fine-tune future program activities to improve the impact and success of the program. Products from this study can also be used to maximize the impact from federal funding for public libraries. The funding programs and initiatives are simply too important *not* to study their impacts and benefits. If the nation is to be successful in the global networked information environment, it is essential that public libraries and the residents they serve obtain the maximum benefits possible from these programs.

CHAPTER 2: BACKGROUND

The term "digital divide" distinguishes between those who have access to and can effectively use new information technologies and those who do not.[11] A goal of those seeking to reduce the digital divide is that every person has access to these new technologies when and where they need them and has understanding of how to use these tools effectively. An interim step is to equip community institutions such as public libraries with Internet access and trained staff. This chapter provides brief background information on the digital divide and the three major library-oriented national-level external funding sources that seek to reduce it: the Library Services and Technology Act (LSTA) funding, E-rate, and the Bill and Melinda Gates Foundation Library Program.

The Digital Divide

"Digital divide"[12] is a phrase initially used in 1995 by the Department of Commerce's National Telecommunications and Information Administration (NTIA) to describe the existence of "haves" and "have nots" in the networked environment. NTIA, through its 1995 report *Falling Through the Net: A Survey of the "Have Nots" in Rural and Urban America*, demonstrated that there were clear differences in access to technology (e.g., computers, computers with modems) across households by race, income, education, and geographic location. Indeed, minority households, households with less than the median income, households with non-college-educated individuals, or households located in rural areas were less likely to have computers in the home.

The NTIA (U.S. Department of Commerce. National Telecommunications and Information Administration, 1998) report identified "profiles of the least connected" as rural poor, rural and central city minorities, young households, and female-headed households. The report concludes (p. 6):

> An increasing number of Americans have become connected to the Information Superhighway in the last three years.... Nevertheless, significant segments of the population still remain unconnected by telephone and/or computer.... Because it may take time before these groups become connected at home, it is still essential that schools, libraries, and other community access centers (CACs) provide computer access in order to connect significant portions of our population.

Clearly, public organizations, such as public libraries, would need to provide the Internet connection until access to the net from home was possible.

The NTIA (U.S. Department of Commerce. National Telecommunications and Information Administration, 1999) report defined the "digital divide" as "the divide between those with access to new technologies and those without" (1999, p. xii) and considers the digital

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[11] Basic guides to digital divide resources can be found at: American Library Association, Benton Foundation, Boucher, Chu (2000), Goggle, Hoffman & Novak, and Yahoo.

[12] For additional resources see Ryan, Joe. *Information resources for information professionals' digital divide*. <http://web.syr.edu/~jryan/infopro/divide.html>.

divide to be "one of America's leading economic and civil rights issues" (1999, p. xii). The NTIA report (1999, p. xiii) found that:

- Households with incomes of $75,000 and higher are more than twenty times more likely to have access to the Internet that those at the lowest income levels, and more than nine times as likely to have a computer at home;
- Whites are more likely to have access to the Internet from home than African Americans or Hispanics have from any location;
- African American and Hispanic households are approximately one-third as likely to have home Internet access as households of Asian/Pacific Islander descent, and roughly two-fifths as likely as White households; and
- Regardless of income level, Americans living in rural areas lag behind in Internet access.

Thus, there is a discrepancy in access to network-based technologies by race, income, and geographic location.

A key issue raised again in the NTIA (U.S. Department of Commerce. National Telecommunications and Information Administration, 1999) report is the role of the community access centers (CACs) – defined as schools, libraries, and other public access points –in ameliorating the digital divide. It is important to consider the role, ability, and potential of CACs in the digital divide. It is clear that the digital divide will not simply disappear over time without effort on the part of various community-based organizations, including public libraries. Indeed, the 1999 NTIA report states that "for many groups, the digital divide has widened as the information "haves" outpace the "have-nots" in gaining access to electronic resources" (p. xiii).

The NTIA (U.S. Department of Commerce, National Telecommunications and Information Administration, 2000) report found that 51% of all U.S. homes had a computer and 41.5% of all U.S. homes had Internet access. Internet access by race was: Asian American & Pacific Islander (56.8%), White (46.1%), Hispanic (23.6%) and African American (23.5%) households. Internet access by income was $75,000+ (86.3%) while households $15,000 or below (12.7%). 65% of college graduates have Internet access compared to 12% of households headed by those with less than a high school education. Internet access by rural urban location was: 42.3% urban 38.9% rural and 37.7% central city. When outside the home Internet access was: work (62.7%) K-12 schools (18.9%), other schools (8.3%), libraries (9.6%) community centers (.5%) at Community Centers, and someone else's computer (13.8%).

Public Library Internet Connectivity and the Digital Divide

In this mix, it is important to assess the role that public libraries play in the digital divide, as well as the use of external, national-level funding to support public library involvement with and use of the Internet. Recent research by the authors shows that 95.4% of public library outlets provide public access Internet services (Bertot and McClure, 2000). Of those outlets that do provide public access Internet services, each outlet has an average of 8.3 graphical workstations – but rural libraries have an average of 4.9 workstations as compared to an average of 17.3 in urban libraries. Moreover, 25.3% of rural public libraries connect to the Internet via a dial-up 56kbps modem. The same study shows that 62.1% of library outlets with 20-40% poverty and

69.6% of library outlets with more than 40% poverty designations make use of the E-rate discount to support their Internet connectivity services.

Public library Internet connectivity, while improved substantially since 1998 (Bertot and McClure, 1999), still requires external support, especially in terms of higher bandwidth to provide adequate access to Internet-based technologies to the public.

Key Components of Federal Funding of Public Libraries

The first unit within the federal government devoted to libraries was the Library Services Division created in 1938 as a part of the Office of Education at that time a part of the Interior Department.[13] The first large-scale federal program supporting public libraries was the Library Services Act (LSA) (P.L. 84-597) passed on June 19, 1956. The focus of the legislation was extending or enhancing rural public library services.

The February 11, 1964 Library Services and Construction Act (LSCA) (P.L. 88-269, 20 USC 351 et seq.) merged LSA mandates with the addition of funding for urban public libraries and public library construction (Title II). LSCA re-authorization legislation added specialized State library services (to state institutions and the handicapped) and interlibrary cooperation (Title III) in 1966.[14] The LSCA re-authorizing Act (P.L. 95-123) passed on October 7, 1977 required state or non-federal matching funds. The LSCA legislation in its final years had six titles: public library services, library construction, interlibrary cooperation, Native American library support, foreign language materials acquisition, and library literacy.

Table 2.1 summarizes key federal legislation related to public library funding.

[13] For a history of this period in federal library affairs see Molz (1984) and Raber (1995).
[14] For a history of LSCA from 1964-1981 see Holley & Schremser (1983). Molz (1990, 10-12) supplies a helpful legislative chronology (Table I) covering the period 1956-1988 and a summary of LSA/LSCA appropriations 1957-1989.

Table 2.1 Brief Legislative History of Federal Support of Public Libraries.	
Date	**Action**
1938	Library Services Division created as part of the Office of Education at that time a part of the Interior Department.
June 19, 1956	Library Services Act (LSA) (P.L.84-597) passed. The first large-scale federal program supporting public libraries, subsidizes rural (less than 10,000) public libraries using state libraries as administrator. Act continued in effect until 1964 with extensions of no more than 5 years with appropriations determined annually.
February 11, 1964	Library Services and Construction Act (P.L.88-269, 20 USC 351 et seq.) merged LSA mandates with the addition of funding for urban public libraries and public library construction (Title II). Continues LSA funding approach with extensions of no more than 5 years with appropriations determined annually.
July 19, 1966	Interlibrary loan cooperation (Title III), library services to institutions (Title IVA) and the physically handicapped (Title IVB) added to LSCA (P.L.89-511).
November 24, 1967	Added a provision under construction title (II) allowing libraries to obtain LSCA funding to acquire existing buildings and renovate (P.L.90-154).
December 30, 1970	Adds programmatic emphasis to include low-income families. Consolidates Titles I, IVA and IVB. Adds support for metropolitan libraries serving as regional or national resource. Strengthens support for state libraries. Removes matching requirements for interlibrary loan cooperation. (P.L.91-600)
July 20, 1970	Act (110 Stat. 3009, P.L.91-345, 20 USC 34 <http://www.nclis.gov/about/background/uscode.html>) established the U.S. National Commission on Libraries and Information Science (NCLIS) <http://www.nclis.gov/>. Amended August 14, 1991 (P.L.102-95, <http://www.nclis.gov/about/background/pl102-95.html>), September 30, 1996 (P.L104-208, <http://www.nclis.gov/about/background/p104-208.html>).
May 3, 1973	Older American Comprehensive Services Amendments (P.L.93-29) amends LSCA to add (Title (IV) Older Readers Services but title was not funded.
October 19, 1973	National Foundation on the Arts and Humanities Amendments (P.L.93-133) amends LSCA to include research libraries meeting certain criteria.
August 21, 1974	Education Amendments of 1974 (P.L.93-380) adds programmatic emphasis to include limited English speakers.
October 7, 1977	LSCA re-authorizing Act (P.L.95-123) requires federal funds spent for administration to have state or non-federal matching funds; adds emphasis on major urban libraries.
October 17, 1984	Beginning in 1984 there was a shift in intent toward funding use of information technology by libraries. Adds services for Native Americans. Adds emphasis on librarian training and providing literacy training for adults (P.L.98-480).
1996	Telecommunications Act of 1996 (110 Stat. 56, P.L.104-104) Funds the E-rate program that provides advanced telecommunications and information technologies and services to schools and public libraries at a discount rate.
September 30, 1996	The Omnibus Consolidated Appropriations Act of 1997 (110 Stat. 3009, P.L.104-208, H.R. 3610) Section 101(e), title VII: Museum and Library Services Act of 1996 <http://www.imls.gov/whatsnew/leg/leg_mlsa.pdf> Subtitle B: Library Services and Technology Act (LSTA). Consolidates 8 LSCA titles (4 unfunded) to two broad LSTA priorities: first, use of technology for information sharing among libraries, and between libraries and other community services and second, making library resources more accessible to urban and rural localities, and to low-income residents and others who have difficulty using library services. Continues LSA and LSCA funding approach with maximum extensions of 5 years with annual appropriations.
December 1, 1997	Museum and Library Services Technical and Conforming Amendments (P.L.105-128, S. 1505) makes minor corrections. The text of the Act as amended is 20 USC 9101.

What is LSTA State Library Agencies Funding?

LSCA became the present day Library Services and Technology Act (LSTA) funding in 1996. The Museum and Library Services Act of 1996 (P.L. 104-208, H.R. 3610) <http://www.imls.gov/whatsnew/leg/leg_mlsa.pdf> and its LSTA section was part of the Omnibus Consolidated Appropriations Act of 1997 enacted on September 30, 1996 and amended on December 1, 1997 by the Museum and Library Services Conforming and Technical Amendments of 1997, (PL 105-128). The text of the Act as amended is 20 USC 9101. Library Services and Technology Act (LSTA) funding began in 1998. Funds go to Secretary of Education who transfers them to Institute of Museum and Library Services. This arrangement retains the House, Labor Health and Human Services, Education Appropriations Subcommittee jurisdiction over library appropriations.

LSTA built on the strengths of previous federal library programs, notably LSCA with some major differences. LSTA:

- Moved the responsibility for the administration of the program from the Department of Education to a newly created independent federal, executive branch, agency, the Institute of Museum and Library Services (IMLS);
- Re-focused the program on two key priorities (section 231): establishing or enhancing electronic linkages among or between libraries, and targeting library and information services to persons having difficulty using a library and to under-served urban and rural communities, including children (from birth through age seventeen) from families with incomes below the poverty line;[15]
- Dropped "bricks and mortar" library construction. Only minor wiring or lighting adjustments are allowed. No building renovations like ramps and doors are allowed even if they are to help meet Americans with Disabilities Act requirements;
- Dropped separate title for literacy funding. The Elementary and Secondary Education Act (ESEA) picked up some of this effort particularly as part of its Head Start and Even Start programs. States can use LSTA funds for literacy programs if it is a designated priority;
- Expanded the types of libraries that could participate in the program beyond public libraries (section 212) to include, school, academic and private research libraries;
- Continued to stress library services to people of diverse geographic, cultural, and socioeconomic backgrounds, to individuals with disabilities, and to people with limited functional literacy or information skills;
- Retained the successful State library-based approach to administering the program, further streamlining and simplifying program administration without sacrificing accountability and evaluation; and

[15] The broader mandate remained in Section 212, "the purposes of the act are to stimulate excellence and promote equity and lifelong access to learning and information resources in all types of libraries; to stimulate improvement and innovation in library services through public-private sector partnerships; to establish national library service goals for the 21st century that will: provide access to information through international electronic networks; help contribute to a productive work force, develop reading and critical thinking for children and adults, provide targeted services to people of diverse geographic, cultural and socioeconomic backgrounds, to individuals with disabilities, and to people with limited functional literacy or information skills; to provide adequate hours of operation, facilities, staff, collections, and electronic
access to information."

- Continued emphasis on public libraries, but encouraged interlibrary cooperation and productive partnerships throughout the entire act, allowing much more flexibility.

LSTA allows funding to go to all types of libraries including academic, public, school and special. The only libraries that cannot receive LSTA funds are federal or for-profit libraries.

LSTA emphasized the role of libraries as change agents, implementers of equity, as self-help institutions and community partners in lifelong learning and literacy, as economic developers, and as organizers and providers of basic information in such areas as employment, health, law and government services.

Federal funding for libraries has never been certain and is always determined year-to-year. The Library Services Act and its descendants: Library Services and Construction Act (LSCA) and Library Services and Technology Act (LSTA), are among the longest running entitlement acts authorized. Every several years, most recently this has been every five years, Congress reviews and re-authorizes the act. Congress determines the amount of funding for the act on an annual basis. Thus the amount of the principal source of federal funding for libraries is determined year-to-year adding additional uncertainty to library planning efforts.

Institute of Museum and Library Services (IMLS) Role

The Institute of Museum and Library Services (IMLS) <http://www.imls.gov/> administers LSTA funding.[16] IMLS administers a number of programs supporting libraries of all types, museums and library-museum partnerships. These programs include: National Leadership Grants (NLG) for Libraries (categories include: Preservation or Digitization of Library Materials; Education and Training; and Research and Demonstration), National Leadership Grants for Library-Museum Collaborations, Native American Grants, Native Hawaiian Grants and the Grants to State Library Agencies. The focus of this study is the Grants to State Library Agencies program and the use of this funding to assist public libraries (although other types of libraries may also use this funding source). The annual allotment of LSTA funds is as follows:

- 91.5% or more allotted to states via Grants to State Library Agencies;
- 3.75% for National Leadership Grants;
- 1.75% for Native American and Native Hawaiian Grants; and
- 3% limit allowed for federal level administration.

[16] For an early report see Frankel (1998) and the 1997-1998 IMLS annual report <http://www.imls.gov/pubs/pdf/pubannrp.pdf>. For legislative intent see: U.S. Congress. Senate. Committee on Labor and Human Resources. (1995, August 30). Arts, humanities, and museums amendments of 1995 (Senate Report 104-135), Washington, DC: G.P.O. Y1.1/5:104-135.

Table 2.2 LSTA/IMLS Library Program Appropriations.				
Year	**Grants to St. Lib. Agencies**	**NLG Lib. & Lib./Museum**	**Native American/HI**	**Total**
1998	135,466,990 (146,340,000 request)	5,487,750	2,560,950	143,515,690
1999	135,366,938 (154,500,000 request)	25,000,000**	2,908,063	163,275,001
2000	138,118,000 (173,000,00 request)	22,025,837**	2,616,000	162,759,837
2001	148,939,000 (168,078,000 request)	50,550,000**	2,940,000	202,429,000
Total	557,890,928	103,063,587**	11,025,013	671,979,528

*1997 no allotment. Total LSTA funds spent by IMLS to administer grant programs is $14,235,919.

**Includes additional funds for Congressionally directed grants in excess of the LSTA formula.

The Grants to State Library Agencies offers population-based formula funding to the states. Table 2.2[17] summarizes appropriations to the library program to date.

State Level Administration of LSTA Grants to State Library Agencies Funds

Each state is required to develop its own priorities and guidelines for grant allocation based on those outlined in the LSTA legislation. The State library administrative agency is the administrator of these funds directing them to statewide services or awarding sub-grants to libraries within the state. All types of libraries qualify for LSTA funds except federal or for-profit libraries. The following highlight basic program requirements:[18]

- Minimum allotment for each state is $340,000 with remainder on a per capita basis;
- 4% of the funds may be used for state-level administration;
- One-third matching required from nonfederal, state, or local sources;
- Maintenance of effort (MOE) on state-level expenditures for similar purposes. The allotment to the state is reduced by % MOE less than the average of the last three years. A State library may request a waiver of MOE for exceptional or uncontrollable circumstances;
- Submission by the State library administrative agency of a five-year state plan and assurances to the director of IMLS. Plan requirements and assurances are summarized in Appendix A. Highlights include: revisions to the state plan are allowed (submitted by April 1 of the fiscal year preceding the fiscal year for which the changes are to take effect); the plan must be publicly available; and be developed with library/library user input;
- Broadly representative state advisory council permitted, not required; and
- Independent evaluation/report required prior to the end of the five-year state plan.

The State library is the usual administrator of these funds, directing them to local public libraries within the state.

[17] Assembled from IMLS press releases and IMLS staff personal communication.
[18] From the *5-year LSTA Plan for 1998-2002* and IMLS staff personal communication.

LSTA Grants to State Library Agencies Works at the Local Public Library Level

The distribution of LSTA Grants to State Library Agencies funds by the State library to local libraries may be done in a variety of ways. Roughly twenty states divide the LSTA funds received in two ways: statewide library programs and via competitive grants to libraries. In many of these states, about half of the LSTA funds received go to statewide library programs and the other half to competitive grants to libraries. Statewide LSTA initiatives are announced by the State library using a variety of mechanisms including: direct mail, State library sponsored listserv, conferences and workshops and by phone.

General requirements to participate may include being eligible to receive state aid. Often the State library will assist public libraries to meet additional requirements if necessary. Competitive grants are awarded once a year on an annual basis, in general. The State library will identify areas of interest, develop application forms and procedures and alert local libraries regarding competitive grant availability.

What Is E-Rate?[19]

The Universal Service Fund was created in 1993 to ensure that all Americans could afford telephone services. Local and long-distance telephone companies must contribute to the fund. The purpose of the fund was broadened with legislation in 1996. The Schools and Libraries Universal Service Fund, commonly known as the "E-rate," became law in February 1996 as part of Public Law 104-104, the Telecommunications Act of 1996 (TCA). The 1996 legislation built on the goals of the 1934 Communications Act *"to make available, so far as possible, to all the people of the United States, a rapid, efficient nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges."*

The TCA provided for a range of sweeping reforms of the telecommunications industry. Equally important, however, were the provisions of the legislation that provided a policy basis for the promotion of Universal Service as part of the National Information Infrastructure (NII). The TCA set into legislation the notion of universal service for the networked environment. That is, the TCA shifted the debate from telephone services to network services being "core" services to which citizens should have access through the universal service principles presented in section 254b of the legislation:

- **Quality and rates:** Quality services should be available at just, reasonable, and affordable rates.
- **Access to advanced services:** Access to advanced telecommunications and information services should be provided to all regions of the Nation.
- **Access in rural and high cost areas:** Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services . . . that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.

[19] There have been a number of other E-rate evaluation studies not specifically focused on libraries including: Carvin (2000), EdLiNC (1999), and Puma, et al. (2000).

- **Equitable and nondiscriminatory contributions:** All providers of telecommunications services should make an equitable and non-discriminatory contribution to the preservation and advancement of universal service.
- **Access to advanced telecommunications services for schools, health care, and libraries:** Elementary and secondary schools and classrooms, health care providers, and libraries should have access to advanced telecommunications services as described in subsection (h).
- **Additional principles:** Such other principles as the Federal-State Joint Board and the Commission determine are necessary and appropriate for the protection of the public interest, convenience, and necessity and are consistent with this Act.

In its May 1997 ruling, the Federal Communications Commission (FCC) and Joint Board added the principle of *Technology Neutral*. The intent of this principle is for the universal service process of the FCC and Joint Board not to promote the attainment of universal service through any particular telecommunication technologies.

To promote access to the Internet, the universal service provision of the TCA specifically directed the FCC to create a discount structure for telecommunications services for schools, libraries, and rural health care institutions. Based on the broad principles established by the TCA, the FCC issued its final universal service rule making in May 1997. In this ruling (Federal Communications Commission, 1997, Section X), the FCC created the following:

- $2.25 billion annual Universal Service Fund (USF) for schools and libraries and a
- Telecommunications discount structure ranging from 20%-90% for telecommunications services. The discount rate a school or library can receive depends on the percentage of students eligible for the national school lunch program at the nearest school and its urban/rural location. See Table 2.4 Schools and Libraries Discount Matrix below for the discount rates.

The universal service provisions of the TCA, and the FCC implementation of those provisions, are aimed specifically at increasing the level of connectivity of schools and libraries to the Internet. In doing so, the FCC established that "core" connectivity (those items which will receive discounts) includes telecommunications services (e.g., leased-lines), internal connections (e.g., routers, modems, cabling for buildings) and Internet access. The FCC created the Schools and Libraries Corporation (SLC), now renamed the Schools and Library Division (SLD) <http://www.sl.universalservice.org/>, to oversee the USF implementation.

With the passage of the Telecommunications Act of 1996 (TCA) and the Federal Communications Commission's subsequent implementation of the E-rate, the Universal Service fund was expanded in 1997 to support telecommunications services at schools and libraries. The E-rate program provides all public and private schools and libraries (and certain consortia of eligible institutions) discounted access to affordable commercial telecommunications services, Internet access and internal network connections. Discounts range from 20 percent to 90 percent, depending on economic need and location (urban or rural).

Brief Program History

The Federal Communications Commission (FCC), following passage of the 1996 legislation, established the Federal-State Joint Board on Universal Service to obtain public input on how the program should be operated. The FCC adopted the Board's recommendations after much debate between industry and representatives of schools and libraries. A principal recommendation of the Board was the creation of the Schools and Libraries Corporation (SLC) to implement the program. The SLC opened the first period of E-rate applications on January 30, 1998, receiving more than 30,000 applications involving requests for a total of more than $2 billion.

GTE, BellSouth, and SBC Communications filed lawsuits (later consolidated into a single legal proceeding) in 1998 seeking to block implementation of the E-rate by the FCC. The litigants claimed that the E-rate represented an illegal tax because phone companies were forced against their will to pay into the Universal Service Fund, and that the FCC had unfairly excluded Internet providers from paying into the Fund. This debate soon spilled over into Congress with members charging that the FCC had exceeded its authority by creating a private corporation to administer the E-rate, and raising concerns about the inclusion of internal building wiring among services that would be eligible for E-rate subsidies. Subsequently, AT&T, MCI, and Sprint began charging customers a "universal service" fee on their phone bills setting off increased Congressional and public debate over the E-rate. The Consumers Union and the Consumer Federation of America joined the opposition claiming the E-rate represented an "unfair price hike" for consumers. At the same time, the General Accounting Office (GAO) released a report concluding that the FCC had indeed violated the 1945 Government Corporation Control Act by establishing a corporation without explicit Congressional approval.

The FCC's response to the controversy was to announce in June 1998 that it would scale back the planned funding cap from $2.25 billion to $1.9 billion, and would spread the funding over a longer "first year" period of 18 months, thereby extending it through June 1999. The lengthening of the time period was also intended to align the E-rate with the regular school year. Concurrently, the General Accounting Office (1998, 1999) issued reports criticizing the management oversight of the program. GAO's criticisms led to the FCC's decision to abolish the SLC and to create the new School and Libraries Division (SLD) as part of the Universal Service Administrative Company (USAC). The net affect of this for public libraries was twofold. It delayed receipt of any E-rate discounts (indeed, Year 1 discounts did not actually reach libraries and schools until 1999), and it caused many libraries to have to re-negotiate with vendors the fees for discounted services due to the lag time between discount applications and actual awards.

SLD issued the first wave of E-rate commitments in November 1998. E-rate applications in Year 2 increased by 7 percent Year 1 of the program. BellSouth and SBC withdrew from the federal lawsuit, leaving only GTE as a litigant. The 5th Circuit Court of Appeals in July 1999 refused to uphold GTE's complaint, and the U.S. Supreme Court refused to hear the litigant's appeal in May 2000. The SLD announced plans to fully fund the second round of applications in October 1999. The Year 3 applications exceeded the combined requests from the first two years of program operations. Table 2.3 summarizes library participation in the E-rate program.[20]

Table 2.3 Library Participation in E-rate Program.

E-rate Year	Total # of applicants	# of Library applicants	% of library to total applicants	Total E-rate awarded	Total awarded to libraries	% awarded to libraries
Year 1 1/1/98-6/30/99	25,930	4,705	18.15%	$1.66 billion	$68,155,381	3.93%
Year 2 7/1/99-6/30/00	29,961	4,746	15.84%	$2.0 billion	$61,235,484	3.06%
Year 3 7/1/00-6/30/01	26,324	4,507	17.12%	$2.1 billion	$65,753,762	3.12%

New regulations under the Children's Internet Protection Act (CIPA) and the Neighborhood Internet Protection Act (NCIPA)[21] were proposed and were about to go into effect for those receiving E-rate funding at the time of the site visits for this study. The revised regulations required those receiving E-rate funding to have in place an Internet use policy and have installed filters on Internet workstations. The proposed federal requirement generated widespread debate in the library community.

E-rate Program Operations

Table 2.4[22] summarizes the E-rate discount based on poverty level and location. Eligible libraries may receive discounts on eligible telecommunication services ranging

from 20 percent to 90 percent, depending on economic need and location (urban or rural). The SLD bases the level of library discount (i.e., libraries pay less than market cost to obtain eligible equipment and services) on the poverty level of the library's school district. The SLD bases the level of school discount on the percentage of students eligible for participation in the National

[20] Data drawn from Universal Service Administrative Company. (2000). Funding commitments by rural/urban statistics and entity type. *Annual report*. p. 38. <http://www.universalservice.org/reports/2000/>. See also Puma, Chaplin & Pape (2000).

[21] The Children's Internet Protection Act (CIPA) and the Neighborhood Internet Protection Act (NCIPA) were incorporated into a major spending bill (H.R. 4577) on December 15, 2000 and signed by the President on December 21, 2000 (P.L.106-554). The Acts restrict use of LSTA, Title III of the Elementary and Secondary Education Act, and E-rate funding. For further information see American Library Association (ALA). Washington Office. CIPA & NCIPA legislation. <http://www.ala.org/cipa/ legislation.html> and ALA. CIPA web site. <http://www.ala.org/cipa/> and Wisconsin Department of Public Instruction. (2002).

[22] From *Schools And Libraries Universal Service Fund E-rate fact sheet*. <http://www.ed.gov/Technology/eratefacts.html>.

School Lunch Program or other federally approved alternative mechanisms contained in the Elementary and Secondary Education Act (ESEA).

Table 2.4. Schools and Libraries Discount Matrix		
How Disadvantaged?	**Discount Level**	
% of students eligible for the national school lunch program	**Urban Discount Level**	**Rural Discount Level**
Less than 1%	20%	25%
1% - 19%	40%	50%
20% - 34%	50%	60%
35% - 49%	60%	70%
50% - 74%	80%	80%
75% - 100%	90%	90%

Eligible libraries may participate as part of multiple E-rate applications and can apply for discounts as part of a consortium. A consortium may include both eligible and ineligible (private, for-profit) entities that are not entitled to a discount. Ineligible members of a consortium may benefit from lower *pre-discount* prices from market aggregation. Consortia members may benefit from aggregating demand, better ability to negotiate lower prices, improved efficiency, shared infrastructure and technical support.

SLD disburses E-rate discount payments directly to the vendors providing technology or services to the approved libraries (and consortia). The vendor payments discount the bill charged to the library. The payments can pay for the following types of service: commercial telecommunications services (basic local and long-distance phone services), internal connections (including installation of equipment to provide network wiring within library buildings), and Internet access. The largest share of E-rate funds, 58 percent, supported the acquisition of equipment and services for internal building connections, while 34 percent supported telecommunications services, and eight percent supported the cost of Internet access (Puma, Chaplin & Pape, 2000, p. xi). Discounts cannot pay for computer hardware, software and staff training.

Even if a library is eligible, it may not be funded in any given funding year due to overall funding shortfalls. Funding decisions by the SLD are made in waves within each funding-cycle beginning with those institutions eligible for the highest discounts and with the most basic services (e.g., basic telephone). Waves of funding continue until all requests are met or until the budget is depleted. The SLD prioritizes applications based on the level of discount (higher discounts are given higher priority) and the type of services requested. For example, of those libraries requesting internal connections (i.e., connections within libraries and to workstations) in Year 1, SLD funded only those eligible libraries with discounts of 70 percent and above.

E-rate Application Process

The E-rate application process consists of six basic steps that all participants must follow:

1. ***Prepare a technology plan that meets SLD criteria.*** The SLD rules require the library develop a three-year technology plan to address: How information technology can help libraries achieve a vision for an improved library? What telecommunications services, hardware, software, facility upgrades, maintenance, and support services will libraries need to reach their goals? How will library staff learn to use networked information technologies for improved library services? In addition to the share of discounted services, how will the library pay for computers, training, software, and support services that the E-rate does not cover? How will libraries know if the information technology investment is helping them reach their goals for library service? Libraries must also certify that they have funds budgeted and approved to meet their financial obligations to pay for the "non-discounted" portion of their requested services and to pay for the other components, set out in their technology plans, for the current funding year.

2. ***Submit a "Form 470 Request for Services."*** The application, submitted either in paper form or to the SLD web site, notifies the SLD of the services and/or equipment requested by the library. There are separate annual funding cycles allowing a 75-90 day window for the submission of Form 470s.

3. ***Collect bids from vendors and select sources through a competitive bidding process.*** The Form 470 submission starts a 28-day competitive bidding period. Libraries must wait at least 28 days from the date of the Form 470 before signing any contract or making other arrangements for new services. Libraries must follow their regular state or local competitive bidding processes or time frames.

4. ***Submit a "Form 471, Services Ordered and Certification."*** Applicants file a Form 471 to apply for E-rate discounts after service providers have been selected and contracts signed. This form may be filed as soon as the "window" for submission is opened by the SLD.

5. ***Receive notification from SLD of approved acquisitions.*** The SLD issues a Funding Commitment Decision Letter after review of the Form 471 application. This letter tells applicants the level of E-rate funding allocated for E-rate-eligible services. The SLD approves each requested service individually and assigns each a Funding Request Number. The SLD also notifies vendors of the approved funding commitment.

6. ***Implement services.*** The SLD disburses funds directly to the vendors after the library receives its contracted equipment or services.

See the SLD web site <http://www.sl.universalservice.org/SLC> for further information on program operations and the application process.

There have been a number of evaluations of the E-rate program for schools including Benton Foundation (2000, 2001), Congressional Research Service (1999), EdLiNC (1999 a and

b), General Accounting Office (GAO) (1998, 1999), and the Urban Institute for the U.S. Department of Education (2001, 2001a).

Preliminary Schools & Libraries Division Data Analysis

The study team, in conjunction with the American Library Association's Office of Information Technology Policy (OITP), analyzed E-rate data provided by the Schools and Library Division (SLD) of the Universal Service Administrative Company (USAC) to:

- Receive a usable E-rate data set for the analysis relevant to this study;
- Understand the construction of the database tables provided the study team by SLD;
- Run the analyses; and
- Verify the findings with both SLD/USAC staff and E-rate data posted on the SLD web site <http://www.sl.universalservice.org/>.

In the end, the process of obtaining permission to receive the data, negotiating the types of data desired for analysis purposes, clarifying the contents of the data tables, and verifying the results evolved over a period of 22 months (January 1999 through October 2001).[23]

For analysis purposes, the study team sought basic E-rate data to answer a number of key questions. The study team developed the research questions based on the following: ongoing discussions with the ALA E-rate Task Force members; a key E-rate data forum conducted by the E-rate Task Force in January 1999, at which representatives from a number of data gathering agencies were present (National Telecommunications Information Agency, U.S. Department of Education, and the National Commission on Libraries and Information Science, to name a few); and, key library and policy individuals knowledgeable about data needs and the E-rate program.

Based on this process, the study team developed initially the following set of data analysis questions for the E-rate data:

- What are the discount amounts by state that libraries requested initially and received finally?
- What is the total amount, by state, of discount dollars requested but denied by the libraries?
- What are the types of eligible services, by state, that libraries requested for discounts?
- What is the disbursement of dollars, by state, relative to the percentage of library outlets within the state serving an area with high poverty levels?

As discussed in the section below, it was not possible to answer all of the above questions with the data provided the study team by SLD.

[23] Readers should note that USAC is a private, non-profit company and therefore does not make its E-rate data sets available to the public. The Federal Communications Commission (FCC) initially established both the Schools and Library Corporation to administer the E-rate application process and USAC to administer the E-rate program overall. The Schools and Libraries Corporation later became the Schools and Libraries Division of the USAC. The study team, through ALA's OITP, negotiated to receive selected E-rate application data through requests to the FCC.

Data Acquisition and Analysis Issues and Limitations

The data received and analyzed are for E-rate years two and three. Based on various interviews and data collection activities conducted by the study team, the consensus was that Year 1 E-rate data was problematic in general and reflected different application forms than years two and three in particular, thus not providing comparable data. Also, at the time that this study began the data seeking process, E-rate year 4 had not begun, nor had it completed by the time of receipt of the data. Overall, therefore, the data provide a very limited view of library E-rate discounts for E-rate years two and three. The study team stresses that these are E-rate year data. Previous data sets provided the study team were E-rate data by *calendar* year. Analysis on such data would mix E-rate year funding, as E-rate funding years crossed calendar years in most cases.

There are a number of factors that readers should consider while reviewing the data tables that appear in Appendix B:

- E-rate data reside within a very complex Microsoft Access database. Within that database, there are a number of data tables. The study team requested certain types of E-rate application-based data (e.g., initial discounts, received discounts, services requested, state, library/school designation, to name a few) and SLD provided the tables thought most appropriate to the data requested.
  - When a request is made by an outside party for some portion of that data it is not always a simple matter of extracting a few tables, putting them on a CD and delivering them to the client. Many tables in a system like this have complex linkages to other tables, and simply ignoring these connections can result in the researcher drawing wrong conclusions based on erroneous data. Indeed, the tables do not have a common set of applicant information against which to link or analyze. As such, analyzing the data required a number of data quality checks and corrections to ensure accurate analysis. The study team, with the assistance of SLD/USAC staff, conducted quality assessments to ensure as reliable analysis as possible. Still, there may be some differences with SLD-provided analysis versus that presented here. Appendix B provides complete descriptions of data tables received by the study team.
- It is difficult for researchers to analyze the number of requests for funding that a state generates. For example, a state may decide that it is going to make a small number funding requests for a larger number of libraries while another state may decide that each library is to make requests on its own. They may be equally successful in acquiring funds, but it is difficult to tell how many entities are affected.
- The data are *estimates* of library application and discount data. Schools, libraries, or school/library consortia (including state libraries and state-wide networks) can apply for discounts. Due to the construction of the data files, it is not possible to isolate library discounts within the school/library consortia category without reviewing each consortia application form. As such, the analysis presented focuses on the library applicant category only. This likely underreports overall library E-rate discounts received, as it is not known how many libraries participate in the consortia.

- The SLD database does contain a "building code" variable in which Department of Education school facility codes sometimes appear. There is no entry for libraries, however. As such, the National Center for Education Statistics library codes used by the Federal-State Cooperative System (FSCS) to identify specific public library systems and outlets do not exist in the database. Thus, it was not possible to properly identify applicant libraries and cross the E-rate data with other existing public library data (e.g., poverty such as used by Bertot and McClure, 2000, to determine Internet connectivity by geocoded library outlets). The study team could not, therefore, conduct library-based poverty analysis.
- The process of requesting E-rate funds can be quite lengthy in many cases. When a decision is made to coordinate the application process within a state, there can be many rounds of meetings to decide which groups will be involved. Will it be just libraries within a county? Will a group of counties coordinate together? Will the State library system coordinate for the entire state? Will a school system be involved? Will a library join with a group of schools? There are many possibilities to consider and planning meetings to coordinate. Once an application strategy is adopted and submitted, separate applications for the funding of services begins. Again, there are a number of different strategies possible to follow.

  All of this is to point out that E-rate funding requests can take a considerable amount of time and resources to implement. Added to this timeline is the time it takes for applications to be reviewed and accepted at the national level. This elongated timeline can lead to inaccuracies or misleading analysis when snapshot copies of the E-rate database are extracted and analyzed. There are status codes to help the researcher know where in the process a particular request is, but they are not always easy to use when overall analysis is needed. For example, if an entire (large) library system applied and their application was sent in near the application deadlines, and delays were encountered due to technical problems with the paperwork, an analytical look at E-rate data early in the funding year may have given a very different picture than one month later.

- Finally, without the study team having a method for acquiring a thorough understanding of how the E-rate database is constructed, it is difficult to know what kinds of questions can be asked and answered accurately through analysis of E-rate data. It may be easy to evaluate the application forms and know the procedures for applying for E-rate services and formulate questions and hypotheses, but without knowing how the applications are stored and processed in the databases, it is difficult to know if it is possible to extract accurate evaluations.

While there are other issues that the study team encountered with the E-rate data, the above are key.

Readers should note that the above issues reflect a learning curve encountered by the study team while negotiating for E-rate data and once in receipt of the data. USAC and SLD staff provided assistance and support to the study team in its attempt to understand the database, individual data tables, and data linkages.

Key Findings from the Preliminary Schools & Libraries Division Data Analysis

First, a note on why the numbers presented are correct in the aggregate, but breakdown at the state level. The data tables that the study team received from SLD identified the applicants by their applicant type: school, library/library consortium, or consortium. The study team did not receive the tables that identified individual members of multi-type consortia, so could not identify libraries within those applicant types that received E-rate funding. As a result, the study team only analyzed E-rate data for the library/library consortium applicant type. In doing so, the study team generated aggregate E-rate discounts received by libraries/library consortia quite similar to those reported by SLD.[24] However, this does not present the full picture of what libraries receive in terms of E-rate discounts. Many libraries are included in applications submitted by multi-type consortia or as part of school E-rate applications. Two examples illustrate this:

- MOREnet (Missouri Research and Education Network, http://www.more.net) is a multi-type consortium that operates in Missouri. It has members – both school and library – that qualify for E-rate discounts and, as such, submits applications for these qualifying institutions. Correspondence with Tony Wening (Program Director and member of the ALA E-rate Task Force) indicates that an additional $756,423.20 in Year 2 and $1,350,034.09 in Year 3 attributable to Missouri libraries were received. These E-rate benefits were not reflected in the study team's analysis of library/library consortia E-rate discounts. Why? These additional dollars are contained within the consortium set of data to which the study team did not have access. The study team would need to know who belongs to the consortium and separate out library members.
- TEACH WISCONSIN is a state K-12 and library networking agency that files a statewide E-rate application for telecommunications line discounts for 700+ K-12 schools and libraries in the state of Wisconsin. Again, it appears in the consortium data table, as this is a multi-type entity that supplies telecommunications services to both schools and libraries. Correspondence with Robert Bocher (Library Technology Consultant at the Wisconsin Department of Public Instruction, State Division for Libraries) indicates that the amount of the discount for E-rate year 3 is $481,000. However, it is unclear, and likely not ascertainable, to determine how much of the discount applies to libraries as distinct from schools.

Thus, the above illustrates the more modest difficulties in using the SLD data received by the study team to portray accurately E-rate data at the state level.

[24] Note that the actual figure reported for Year 2 by SLD is $65,234,957.44 (see http://www.sl.universalservice.org/funding/y2_national.asp), compared to the $64,995,723.51 reported by the study team's analysis. For Year 3, SLD reports $66,001,235.14, compared to $66,090,324.62 reported by the study team's analysis.

To facilitate reading the data tables presented in Appendix B, the study team presents the key findings from its analysis of E-rate data here. The findings are listed by table number as follows:

- **Tables B.1 and B.2**, *E-rate years 2 and 3 library funding committed.* Overall, libraries in the states and territories received approximately $65 million in funding commitments during E-rate year 2 and $66 million in funding commitments in E-rate year 3. In terms of sheer commitment totals, New York and Georgia received the most in commitments for both E-rate years, with New York receiving $12,164,440 in E-rate Year 2 and $15,439,444 in Year 3. Georgia received $6,732,990 in Year 2 and $5,298,414 in Year 3.
  - Georgia remained relatively successful when these commitments are viewed as a per capita ratio. Per capita spending in E-rate Year 2 ranged from a low of $0.024 (New Mexico) to a high of $0.842 (Puerto Rico). For E-rate Year 3, per capita spending ranged from a low of $0.014 (South Dakota) to $1.171 (Puerto Rico). The study team used 2000 census data to determine the estimated per capita commitments.
- **Tables B.3 and B.4**, *E-rate requested amounts and committed amounts for years two and three.* In Year 2, almost 80% of library E-rate discount requests received funding (nearly $82 million in requests and approximately $65 million in commitments). In Year 3 that number dropped to 61% (nearly $109 million in requests and approximately $66 million in commitments). Hawaii only received 11% of the funds they originally asked for in E-rate Year 2, but 79% the following year. Mississippi received almost everything they requested in Year 2 (99.5%) and received 77% of their Year 3 requests. Delaware led all states by receiving 97% of their requests in Year 3, having received just 68% the previous year.
  - A number of factors can contribute to the variation in requested and committed discounts. These can include libraries applying for ineligible E-rate discount items and improperly filed SLD E-rate forms. Other factors exist, thus, the study team cannot point to any systematic factors that contribute to the discrepancies between library discount requests and final commitment from SLD.
- **Tables B.5 and B.6**, Total E-rate dollars requested but denied funding for years two and three. Overall, SLD denied 1,692 E-rate discount requests for a total of $11,756,290.43 in E-rate Year 2 and 1,972 requests for a total of $29,942,471.16 in E-rate Year 3. The Year 2 per capita denial average was $0.042 and climbed to $0.106 in Year 3. There was an approximate 4.5% increase in applications for funds in Year 3, but a 15% increase in denials.
  - In Year 2, Michigan was denied funding for 72 of its requests which averaged to a $0.175 per capita denial rate, the highest for that year.
  - California, the nation's most populous state, had a $0.012 per capita denial rate in Year 2 and slipped to a $0.065 rate the following year.
- **Tables B.7 through B.10**, *Types of E-rate services funded.* The most requested type of service in virtually every state in both years two and three was telecommunication services (phone bills). *Dedicated services* is a sub-category of internal connections through which the funding request specifically earmarked the funds for a particular library or group of libraries and did not cover the entire set of entities on the original application.

- There was a significant drop in the requests for internal connections from Year 2 to Year 3, indicating that many of the libraries had used prior year funds to get their buildings set up, and were now primarily using funds for connections.
- Combining the dedicated services and internal connection categories in Year 2 reveals a total of 3,081 funded requests for these services compared to only 323 in Year 3, an almost 90 percent drop (see Tables B.9 and B.10).

Further details can be examined in Appendix B.

Preliminary USAC/SLD E-rate Data Analysis Summary

There is a large amount of data reported in the tables presented in Appendix B. Overall, the data tables suggest that:

- Libraries received between 61% and 80% of their requested discounts for E-rate years two and three, though it is not clear as to the reasons for the denials;
- Libraries received around 3% of the total E-rate discounts for years two and three (according to SLD data on the SLD web site <http://www.sl.universalservice.org/funding/y3/national.asp>.
- States vary in their success at attaining E-rate discounts from year to year and on a per capita basis. It is not the case, in general, that larger states receive more E-rate discounts. Indeed many smaller states (as measured by population) are successful in their E-rate discount applications on a per capita basis.

The tables also indicate a variation in E-rate applications by states, E-rate discounts committed by states, and the types of services for which libraries applied through their E-rate applications. Specific variations can be identified by reviewing individual tables and states.

Bill & Melinda Gates Foundation, U.S. Library Program

The Bill & Melinda Gates Foundation U.S. Library Program <http://www.gatesfoundation.org/libraries/uslibraryprogram/default.htm> began in 1997[25] with the goal of expanding public access to computers, the Internet and digital information in State library certified public libraries that serve low-income communities. The program has made grants to more than 6,600 libraries in the United States, installed more than 28,000 PC's and trained 8,100 librarians as of November 2001 spending $109,141, 929.[26] The goal was to reach 10,000 libraries in 50 states by the end of 2003 with a total investment of $250 million dollars.[27]

[25] This is an outgrowth of Microsoft's "Libraries Online!" program that started in 1995 to bring computer access to the disadvantaged through public libraries.

[26] From Gates web page: http://www.gatesfoundation.org/libraries/grants/default1.htm Microsoft software contribution is probably not included in this total.

[27] Bill & Melinda Gates Foundation U.S. Library Program. (2001, February 21). Press release. <http://www.gatesfoundation.org/pressroom/release.asp?PRindex=352>.

The Gates Foundation grouped the states into four rounds of funding and implementation.[28] Two of the states participating in the site visit portion of the present study, Florida and Michigan, received Gates funding in the second round. The other study participants, Colorado and Pennsylvania, are in the third round of funding and implementation getting underway now. The program has evolved over time incorporating lessons learned while implementing each round of the grants.[29]

The program had a two-step application process. First, the State library completes an application that includes identification of known public libraries in the state. The State library[30] applies to the foundation detailing state readiness, commitment to sustainability over time, and to establishing programs for reaching people who do not otherwise have access to computers and the Internet. Second, eligible public libraries submit applications. The eligibility standards for individual libraries within a state are:[31]

- Library building is within a state that has been accepted to participate in the U.S. Library Program;
- Library building is a public library recognized by the State library agency as a public library;
- Library building serves an area of greater than 10 percent poverty based on U.S. Census Department data for 1990;[32] and
- Library building has not previously received a Bill & Melinda Gates Foundation grant.

States and libraries are given an opportunity to appeal the foundation's eligibility decisions.

Public library participants receive computers, networking equipment, Microsoft software (separately awarded), telecommunications services for Internet access, training and technical support[33] for library staff. The hardware and software configurations received depend on the

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[28] First round: Alabama, Arkansas, Louisiana, Kentucky, Mississippi, New Mexico, and West Virginia. Second round (implemented 1999-2001): Arizona, California, Florida, Georgia, Idaho, Michigan, Montana, New York, Oklahoma, South Carolina, Tennessee, and Texas. Third round (implemented 2001-2002): Colorado, Hawaii, Illinois, Indiana, Maine, Minnesota, Missouri, North Carolina, North Dakota, Ohio, Pennsylvania, South Dakota, Vermont, Virginia, and Wyoming. Fourth round (implemented 2002-2003): Alaska, Connecticut, Delaware, Iowa, Kansas, Maryland, Massachusetts, Nebraska, Nevada, New Hampshire, New Jersey, Oregon, Rhode Island, Utah, Washington, and Wisconsin. Bill & Melinda Gates Foundation U.S. Library Program. FAQ. <http://www.gatesfoundation.org/libraries/uslibraryprogram/ relatedinfo/faq.htm>.

[29] Bill & Melinda Gates Foundation U.S. Library Program. Evaluation of U.S. library programs. <http://www.gatesfoundation.org/libraries/uslibraryprogram/evaluation/default1.htm>. See also: Gordon, Margaret; Gordon, Andrew & Moore, Elizabeth. (2001, February 15). New computers bring new patrons. *Library Journal*, <http://www.libraryjournal.com/gatesLibrary.asp>. This first review of the program was done by the same principal investigators presently evaluating the program for the foundation

[30] In earlier rounds the Gates Fund also involved a state public library leadership coalition in the process.

[31] From the Bill & Melinda Gates Foundation U.S. Library Program. FAQ. <http://www.gatesfoundation.org/libraries/uslibraryprogram/relatedinfo/faq.htm>.

[32] For information on the method used, see: Bill & Melinda Gates Foundation U.S. Library Program. *U.S. library program's determination of population served and poverty rates* <http://www.gatesfoundation.org/libraries/uslibraryprogram/relatedinfo/whitepaperpoppov.htm>.

[33] For further information on grantee support offered see: <http://www.gatesfoundation.org/libraries/uslibraryprogram/granteesupport/default1.htm>.

needs of each library as assessed by the foundation. Each workstation provides assistance for visually and auditory impaired users based on consultation with the Washington Adaptive Technology Alliance (WATA). Each computer provides a Spanish Language profile. Training and technical support covers what to do before your computer arrives, how to use the application software provided, Internet applications, network administration and computer systems management.

Other Public Library Funding to Reduce the Digital Divide

While of substantial importance, LSTA, E-rate and Gates Family Foundation funding are not the only sources of funding for public library Internet services. Indeed, these funding sources are best viewed as pieces of the connectivity puzzle that serves to provide the resources needed for public libraries to reduce the digital divide. Other funding for public library Internet connectivity include:

- **State telecommunications funds**. Some states (i.e., Texas) adopted their own universal service fund mechanisms to assist schools and libraries to connect to the Internet. These funds serve to supplement and/or enhance connectivity in the state's schools and libraries.
- **One time or additional operating appropriations to the State library**. State governments provided one-time funds (e.g., to provide for initial purchase of Internet workstations) and added operating revenues (e.g., to support the purchase of statewide licensed databases) to state libraries that reduced the digital divide.
- **Industry, non-profit & foundation support**. Various computer and telecommunications companies have provided public libraries with critical support as they introduced the Internet to their communities. See for example, AOL Time Warner Foundation <http://www.aoltimewarnerfoundation.org/>.
- **Local government support**. The common assumption, yet to be tested fully, is that local governments will pick up the ongoing support, replacement and maintenance of Internet equipment and services introduced at public libraries. In some cases, public libraries have already been able to leverage federal and state funding at the local level to provide additional funding sources for Internet connectivity, services, and resources.
- **Partnerships and in-kind services.** A number of public libraries receive in-kind contributions and/or services from federal and state agencies, regional consortia, and Internet service providers (ISPs), to name a few. For example, the State library, state telecommunications agency and regional consortia may provide access to telecommunications services as well as online database subscription services. ISPs may provide libraries with Web hosting and e-mail services. County government may host library network services and maintain them. Libraries benefit tremendously from such in-kind services.
- **Local funding sources.** Local industry and individual donors have also played key roles in the provision of Internet resources and services.

There may be other connectivity sources available to public libraries, but the above are key funding sources. Together, each type of funding initiative can provide eligible libraries with a robust Internet connectivity program with workstations, communications equipment, facilities

upgrades, telecommunications services, software, database subscription services, furniture, and other necessary items.

CHAPTER 3: SITE VISITS

This chapter reports on site visits to more than fifty libraries in four states: Colorado, Florida, Michigan, and Pennsylvania involving interviews with over 100 library managers including the State librarian, senior State library staff, and public library managers. See Appendix C for a list of study participants. The goal of this portion of the study was to provide a snapshot of U.S. state and public library efforts to reduce the digital divide and the role of external national-level funding in that effort. Example site visit discussion questions were:

- How did public libraries make use of external national-level funds to develop their network resources and services and address a potential for a digital divide in their communities?
- What role did state libraries play?
- What next steps do state and public libraries plan that may benefit from external funding?

Other discussion questions evolved during the actual site visits.

Study Approach

The challenge was to present useful results and analysis to the library community, external funders, policy makers, and researchers to assist them as they made present and future management, funding, policy and research decisions. The study team could not conduct a study of the entire public library digital divide reduction effort throughout the U.S. given the project's funding and time constraints. Instead, the researchers chose to study four states' efforts intensively, looking for patterns and trends common to all that might be indicative of national trends or issues.

Site Selection

The researchers examined the literature and available data for guidance as to appropriate states to visit. The study team considered whether it was possible to identify the most and least successful states in terms of external national-level funding for public library digital divide efforts. Funding is only one factor in a successful effort to reduce the digital divide and funding at the state aggregate may not reflect what is occurring locally. Funding data could serve, however, as a fair indicator of public library interest, organization, and innovation. In the case of LSTA Grants to State Library Agencies, funding levels were known but funding for Internet services or digital divide reduction was not easy to isolate. In the case of E-rate, three approaches were considered:

- National Center for Educational Statistics (2000)[34] data on which state libraries applied for E-rate funding in Year 1: The division between successful and unsuccessful states seemed clear: the data indicated that some state libraries simply did not apply for Year 1 funding. Upon analysis however, many of the state libraries did not apply because the state departments of education were designated as the state coordinating agency for all E-rate funding (be it school or library), this was not reflected in the NCES data;
- SLD data on E-rate awards for 1999 by state: These data did not control for state population size (large states therefore were ranked higher whether successful or not); and
- SLD data on E-rate awards for 1999 by awards per population of legal service area by state: This data were often in direct opposition to the previously discussed SLD data, frequently ranking the states that had received the largest E-rate awards at the bottom.

The data were inconclusive, indeed contradictory, as to the success of states in being awarded E-rate discounts. None of these data offered a credible means of selecting states whose state or public libraries were more successful in reducing the digital divide.

The study team reluctantly concluded that it was not possible to select state participants based on their varied success in reducing the digital divide or even success in applying for or obtaining external funding to reduce the digital divide. In the absence of other compelling criteria, the principal criteria used to select the states were:

- **Funding and logistics limitations**: The study team limited site selection due to project funding and logistics to four states.
- **Geographic diversity**: Effort was made to select states from different parts of the country, and to include small, medium and larger states.
- **Readily accessible urban and rural libraries**: The researchers set as a minimum criterion that one urban and one rural library would be visited in each state.
- **Population mix**: There should be ready access to public libraries serving populations most likely to not have access to Internet services according to the literature and existing research.
- **Collection of Internet related statistics**: Had the State library collected useful statistics related to public library Internet related activities?
- **State library leadership role**: To what degree had the state libraries taken a leadership role in public library Internet activities and obtaining funding for these activities within the state?
- **Willingness to participate**: The study would make moderate demands on the state and public libraries involved in terms of time and staff commitment. The states chosen had to be willing to participate.
- **Study team knowledge of the state**: The researchers chose states with which the study team had recent state and public library experience. This factor allowed more states and

[34] NCES (2000, Appendix B) reporting 1999 fiscal year data indicates that thirty-six state library agencies were E-rate program applicants. This picture did not improve in fiscal year 2000 when 32 states and the District of Columbia were E-rate program applicants NCES (2001, Appendix B). However data obtained from SLD indicates that the NCES data under-reports state library agency participation. One reason may be that the NCES data does not identify state libraries that applied through their parent state departments of education.

more sites to be studied because of reduced time spent on logistics. This was deemed a factor due to the limited time the study team could spend in each state.

The combination of these factors results in the selection of the four states studied: Michigan, Colorado, Pennsylvania, and Florida.

Each state site visit lasted four days. One day was spent interviewing the state librarian; director of library development; specialists in E-rate, LSTA and federal funding; and, selected specialists in introducing Internet services to public libraries and evaluating these services (e.g., library consultants and district librarians). State library technology managers were interviewed where the State library provided statewide Internet services (e.g., statewide licensed database programs). Where possible, the study team interviewed E-rate fund specialists from the Department of Education. These personnel were most knowledgeable about questions related to the State library study objectives and had the widest view of the range of the state's public library's experience with altering the digital divide. The other three days were spent interviewing public library managers on site in their libraries or in a nearby host library.

The literature and available data also did not offer a credible means of choosing individual public libraries within each state that were representative, successful or not, in reducing the digital divide. Thus, the study team relied on the local knowledge of State library staff and the State library project liaison to select individual library participants within the state. The local selectors were briefed on the study's objectives and told that the researchers wished to visit one urban and one rural public library at minimum. Within these parameters, project liaisons from the states visited developed a range of selection criteria including:

- Innovative Internet services particularly to those who otherwise would not have them;
- Libraries viewed as representative or average libraries within the state;
- Libraries with expert staff in technology, grant writing, fiscal matters;
- Libraries located in likely settings with high poverty rates, illiteracy, or minority populations;
- Libraries with unusual (successful or less successful) E-rate or LSTA experiences,
- Articulate library staff;
- Willingness to participate in the study; and
- Combinations of the above criteria.

The study team interviewed public library directors, governing board members, grant writers, planners, evaluators, and technology managers at each public library visited. In small libraries this was often one person or included volunteers from the community. Host libraries were asked to arrange for a focus group held at the host library and to invite area public library directors or designates. In addition, State library representatives administered surveys prepared by the study team to district librarians in Pennsylvania and library technology officers in Florida. The libraries selected as a result of this approach were diverse in context and experience in reducing the digital divide.

Data Collection

The lead site visit investigator conducted site visits during the period May 29 to June 22 2001. The researchers used an iterative learning strategy to sequence individual data collection events and their analysis such that findings from one activity could be tested in subsequent data collection and analysis events. The study team shared periodic summaries of study findings and analysis with study participants to cross check factual accuracy, completeness, agreement on interpretation and to elicit further comment. The study team also shared periodic summaries of study findings and analysis with an advisory committee of experts in this area for review and comment. This iterative learning approach allowed the researchers to modify, adapt, and refine their data collection and analysis activities as the study team learned.

The study team employed a number of data collection approaches and instruments to accomplish the objectives outlined above. Data collection methodologies included: literature reviews; document collection and analysis from participating state and public libraries and private funders; individual and group interviews including focus groups; brief surveys; and, policy analysis. Copies of selected study instruments appear in Appendix D.

Data Quality

Field evaluation is an art requiring quick assessment of opportunities and dangers to data quality on site. As Schatzman & Strauss (1973, p. vii) note:

> ...much of the research process consists of dealing with a flow of substantive discoveries and with field contingencies that variously modify the research; therefore the researcher is constantly attentive to options which are circumstantially presented to him, or which are created by him. Thus the field researcher is depicted as a *strategist*; for without linear-specific design - the researcher must develop procedure as he goes.

But field research is also a science, involving the systematic effort to reduce error.

The study team made a systematic effort to reduce error due to researcher bias, incomplete or inaccurate data, and a host of other causes. In this effort, the researchers used standard techniques to reduce the threats to data quality as suggested by Creswell, (1994), Guba & Lincoln (1981), Miles & Huberman (1994), and Patton (1990) including:

- Pre-structured research questions and interview instruments, pre-planned fieldwork, and a pre-planned final report. Interview instruments were distributed to those interviewed in advance.
- Chose standard, well-regarded methods familiar to the evaluators and appropriate to the setting (McClure, 1994; McClure, et. al., 1994, Ryan & McClure, 1997; McClure & Bertot, 1997; and McClure & Bertot, 1998). Primary methods were qualitative (Miles & Huberman, 1994) including the use of documentary evidence, interviews (Spadley, 1979), focus groups (Kruger, 1994 and Morgan, 1988) and preparation of case studies (Stake, 1994 and Yin, 1994).

- Documented fully research design decisions in writing and in discussions among the study team.
- Sought dis-confirming and outsider evidence and points of view actively. Attempted, within the constraints of the visit, to interview stakeholders from multiple-perspectives.
- Responded flexibly to the new and unexpected opportunities the data offered.
- Documented fully the data collected. Where possible, the onsite evaluators tape recorded interviews while maintaining confidentiality. Evaluators conducted follow-up interviews where necessary.
- Used mixed methods and triangulated the data collected. Data collected from one source was cross-checked with another. The evaluators compared data collected using one method with answers obtained via another method. The evaluators shared drafts of factual portions of the final report with a key liaison at each site to check for accuracy.
- Pre-structured data analysis and reporting as suggested by Miles and Huberman (1994). This approach was possible because most of the data collection was pre-structured and the intended shape of the final report was known.
- Checked the quality of the data by tracking the chain of evidence that the study team gathered to be sure it was firm enough to support statements made.
- Created an expert advisory panel to review the project during its various stages and advise the study team where necessary. See Appendix E for a list of the Advisory Committee members.

Each of these efforts and others increased the validity and reliability of the evaluation findings and provided a firm basis for making recommendations.

Key Findings

The site-based data collection efforts, interviews and focus group were very productive and informative adding a depth of understanding not obtainable any other way. The investigators were most impressed with the:

- Dedication of state and public librarians and governing board members visited to continue making public libraries the center of their communities and the best place for people of all ages and abilities to obtain the widest array of information in all its forms. We learned something from each of them, and were thankful for their time.
- Library managers detailed knowledge of information technology related revenue streams and expenditures and the issues, impacts and benefits initiated by the introduction of the Internet to their communities.
- Participants' interests in the questions and topics discussed by the investigators.

There was significant interest in the study. As one library manager stated:

> *Unlike the schools, we don't get a lot of federal and what you called external funding. So we have to make the most of what we receive. The introduction of the Internet to public libraries has meant a lot. Now that it is successfully, I think, underway it would be a shame if the external funds dried up just when we have convinced folks to use the Internet. I think it's great that someone from the federal government is asking us local librarians what went right and what didn't and what needs to be done next.*

These and similar comments reflected the desire of many study participants to "tell their story."

The following sections discuss the principal national sources of external funds with an emphasis on the federal LSTA Grants to State Library Agencies and E-rate funding along with the Gates Family Foundation U.S. Libraries program. The findings section of this report concludes with a presentation of issues common to external funding of Internet services in public libraries.

LSTA Grants to State Library Agencies Funding

The state and local library managers interviewed for this study consider LSTA Grants to State Library Agencies funding to be a model federal program for:

- Taking a small amount of money and maximizing the benefit;
- Partnering among federal, state and local governments and private sources;
- Minimizing bureaucracy while maximizing essential feedback;
- Supporting innovation while encouraging widespread use of proven services;
- Assisting those who can not afford and those slow to adopt to catch up; and
- Initiating the transition from a paper-based to a digital public information infrastructure.

Those interviewed stressed both the program's basic accomplishments and the approach used to achieve them. Their single unified complaint was that the program is significantly under funded

given the opportunity, citizen demand, and its proven success. There was widespread support for the American Library Association's efforts (and others) to secure additional funding. This section discusses LSTA Grants to State Library Agencies accomplishments, approach and several specific issues.[35]

Basic LSTA State Program Accomplishments: From Card Catalog to the Internet

The amount of federal, let alone LSTA funding, is so small that there is no single piece of equipment or service that every public library can point to and say: funded by the federal government or LSTA. Table 3.1 presents LSTA Grants to State Library Agencies funding to the states visited.[36]

Table 3.1 LSTA State Program Funding by Year for Site Visit States

State	1998	1999	2000	2001	Total (1998-2001)
Colorado[37]	$2,008,469	$2,019,623	$2,076,291	$2,309,836	$8,414,219
Florida[38]	$6,625,107	$6,662,977	$6,861,953	$7,659,404	$27,809,441
Michigan[39]	$4,527,609	**$4,557,301**	$4,632,550	$4,891,481	$18,608,941
Pennsylvania[40]	$5,602,085	$5,526,319	$5,587,587	$5,964,319	$22,680,310

Yet LSTA Grants to State Library Agencies support (and earlier LSCA funds), strategically spent by state libraries, library systems, and local public libraries, has had a major impact on libraries and their citizen users. LSTA Grants to State Library Agencies funding:

- Championed and funded many important innovations in library information technology which collectively have revolutionized how this public institution is used and run;
- Nurtured and developed the best innovations until they were an accepted part of professional practice; and
- Ensured that libraries that could not afford these proven innovations or were late to adopt them, found a way to obtain them.

LSTA is the principal, ongoing, source supporting innovation in public libraries today. LSTA is also the principal source of support to public libraries that cannot obtain proven innovations on

[35] As this study concludes, the first of external evaluations of state LSTA five year plans are being issued: See for example, MGT of America. *Florida Division of Library and Information Services Library Services and Technology Act 5 year plan evaluation.* <http://dlis.dos.state.fl.us/bld/Research_Office/LSTAeval/LSTAeval.html>.

[36] Data obtained from the IMLS web site <http://www.imls.gov/>.

[37] For further information on State Library of Colorado. LSTA efforts see: <http://www.cde.state.co.us/cdelib/lsta.htm>.

[38] For further information on Florida Department of State. Division of Library & Information Services. LSTA efforts see: <http://www.dos.state.fl.us/dlis/bld/grants/Lsta/LSTA.html>.

[39] For further information on the Library of Michigan. Library Services and Technology Act (LSTA) program see: <http://www.libofmich.lib.mi.us/lsta/lsta.html>.

[40] For further information on the Commonwealth of Pennsylvania. Library Services and Technology Act (LSTA) program see: <http://www.statelibrary.state.pa.us/libraries/cwp/view.asp?a=5&Q=40316>.

their own. At least, the above is true in all of the states and libraries visited and in the study team's experience.

Critical was the early use of LSCA and then LSTA Grants to State Library Agencies funds to begin the transition from a paper-based to a digital information infrastructure[41] to transfer information and services. Most frequently mentioned in planning and budget documents, evaluations, and site visit interviews were significant advances in four areas:

- **Automation of internal operations**: Such as material selection and acquisition, the library catalog and circulation of materials;
- **Resource sharing improvements**: Individual libraries banded together into library systems, the availability of digital records and standardized lending policies due to automation made locating materials across libraries and sharing them possible, and improved document delivery among libraries;
- **Community Internet introduction**: Made communication among libraries and library users with other sources of knowledge practical and efficient so that access to a collection of knowledge was not limited to physical location; and
- **Digital collections**: Perhaps most significant, was the introduction of access to the digital full text of journal and magazine articles along with reference databases and more recently e-books. State libraries and library systems licensed these databases for their residents or members. Libraries began to explore the application of digital technologies to help preserve paper-based collections and to enhance access to library resources.

Libraries were among the first public organizations to realize how computers and more recently the Internet could improve significantly the way they work and provide service to the public. In some cases, a new role for libraries emerged: new information technology center. The library served as the first place in the community to go to learn about and try out new information technologies before purchasing them for home, office, school or government.

LSTA Grants to State Library Agencies funds were also used as a catalyst and as an aid to those who otherwise could never afford these technologies to begin to make their promise a reality for citizens across the country. When asked to summarize the impact of LSTA funding, one librarian expressed a common thought, "LSTA funds, particularly what they did for us introducing the Internet, took libraries and librarians from the marginal, the periphery, back to the innovative center of our community's life. I don't want to lose that again."

Automation of Internal Technical Operations

The days of the card catalog and book stamp are over at most libraries as the first five years of LSTA Grants to State Library Agencies funding draws to a close. Smaller public libraries, acquired automated circulation systems and catalogs, converting records from card catalog cards to a digital format. These advances started at larger libraries during the LSCA[42] years. Smaller libraries participating in library systems also benefit from automated cooperative

[41] Information infrastructure encompasses the underlying technologies, services, policies and procedures that allow a library or library users to select, acquire, organize, store, circulate and use information efficiently and effectively.
[42] LSCA, the Library Services and Construction Act funding, was the predecessor to LSTA.

material selection and acquisitions systems. For the citizen library user finding a book is noticeably quicker and easier even in the smallest of libraries thanks to LSTA Grants to State Library Agencies funding.

The automation of these core internal technical operations make libraries dramatically more efficient and effective, yet there was a time when everyone needed to be convinced that this technology would work. LSCA funded the initial introductions. LSCA and LSTA provided a test bed for the information industry to assess and refine their products. LSCA and LSTA helped fund the conferences and workshops that introduced library professionals to new and better ways of running these core library functions. LSCA and LSTA paid for many of the conversions from old paper based records to the digital records used by automated systems. And, LSTA helped and continues to help the poorer libraries fund what to them is a huge cost in adopting new services.

These benefits continue with the introduction of Integrated Library Systems (ILS). ILS products link internal operations across function within a library. In addition, ILSs link external digital and Internet-based information products, including the holdings of other libraries, with local holdings of books, magazines and databases (such as electronic indexes to local newspapers). ILSs enable citizens to search for and find the information they need, and then use it in the library, at work or school or at home.

Significant Improvement in Resource Sharing

The advances in library automation made the significant improvements in resource sharing and interlibrary cooperation possible. Individual library holdings could be digitally combined into statewide union catalogs. This made finding an item that a local library didn't own possible and speedy. Communication between lending and borrowing libraries was improved via interlibrary networks and the Internet significantly shortened processing times. In some cases, materials were in digital form and could be instantly sent. In other cases the paper material could be scanned and transmitted. And faster document delivery for paper-based materials via library truck and mail became the norm.

LSTA funding supported the costs of testing and perfecting these resource sharing systems, buying key pieces of technology, and training library staff. In some of the states visited, these and other improvements cut in half the time needed to obtain an item a local library did not have from another library. Citizen library users now find that they can obtain the information their local library may not have previously been able to supply.

Community Internet Access Begins: It started at the Public Library

The collection of information to which a library user had ready access less than a decade ago was limited to what was contained within the library's four walls. Today, physical location no longer determines access to knowledge or access to services. Physical location no longer limits what a citizen can buy or sell, listen to or watch, or with whom one communicates. Knowledge is no longer principally conveyed using text. The introduction of the Internet made this possible.

The first publicly accessible Internet workstations available in communities across the U.S. were located in public libraries and funded, in whole or in part, by LSTA. This in turn enabled local libraries to train local government officials, school teachers and administrators, local business people, non-profit leaders and others in how to use what has become a core part of their organizations and their lives. LSTA funding supported ongoing training for library staff and citizen users, and created library based Internet resources for the public and library staff to use. LSTA funded many of the first local and wide area networks linking library computers and other equipment together. This paved the way for more effective use of recent Gates Family Foundation awards.

Digital Collections: Dramatically Expand Libraries Access to Knowledge

LSCA and LSTA Grants to State Library Agencies funds helped the information industry develop and perfect electronic indexes to books and magazines. Internet access increased the market for these products and expanded their scope. Many state libraries, using LSTA funding, licensed databases that included core reference resources including encyclopedias, basic reference sources and indexes to magazines and journals. State libraries also licensed the full text of a wide range of newspaper and magazine articles. Every library and library user benefited.

The consequence of this effort, however, was most dramatic at small public libraries, branches of larger libraries, and at poor public libraries in every state where the service was offered. Overnight, libraries that could not afford an up-to-date reference collection had one. Overnight, a library's magazine collection, often less than a hundred titles, added hundreds more titles. The smallest of libraries could contemplate offering reference and periodical collections equivalent to their larger urban cousins.

LSTA State Program's Approach as Important as Its Accomplishments

The state and local library managers interviewed drew the study team's attention to several elements in the administration of LSTA Grants to State Library Agencies funds critical to the program's success including:

- The LSTA era began on a positive note with the creation of IMLS, "giving libraries their own agency" and "moving libraries out from under the Department of Education where we were lost and second class citizens when compared to schools."
- There is a pragmatic, workable, division of authority and responsibility for how funds are allocated and for what purpose funds are allocated at the federal, state and local levels.
- One particular asset is allowing state libraries flexibility, within appropriate federal priorities and guidelines, for how LSTA funds are used. This enabled quicker adoption of new technology, innovation targeted to local need and interest, and use of LSTA funds to fill in the gaps and support other funding initiatives.[43]

[43] E.g., Libraries needed help to take full advantage of E-rate funding and to complete the applications. State libraries used LSTA to fund E-rate coordinators, create E-rate web pages, and to conduct E-rate workshops. Several librarians commented, "without the state library's help I would have never applied for E-rate."

- A second asset is the State library serves as a "buffer and a bridge" between local libraries and federal government. State libraries can interpret federal agency intent drawing on expert knowledge of the local context.[44]
- A third asset is the balance many states (including those visited) have struck between funding statewide initiatives (for proven concepts)[45] and competitive grants (fostering pragmatic innovation and proof of concept by local peers or enabling libraries to catch up with proven technologies).[46]
- A fourth asset is the development of a system, regional and statewide mindset to solving common problems.[47]
- The skill state libraries' have shown leveraging LSTA funding with other government and private funds.[48]
- Appropriate balance struck among the priorities of:
  - Stimulating innovation;
  - Encouraging the adoption of proven technologies and services; and,
  - Assisting libraries that can not presently afford the proven technologies and services and assisting those who were slow to adopt to catch up.
- Minimizing bureaucracy at the federal, state, and local levels while maximizing essential feedback for oversight, planning and decision making.[49]
- It encouraged a close, hands-on, working relationship among state and local libraries.

After nearly fifty years of experience, these are some of the structural assets that enable limited federal funding of libraries to achieve maximum effect.

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[44] One veteran library grant writer summarized a common sentiment, "When it comes to funding, local libraries don't generally deal directly with federal government agencies, we go through the state library…except for E-rate. E-rate taught us how lucky we are to have the state library to deal with those agencies."

[45] E.gs. of statewide initiatives include: first library computers; first Internet workstations and connections along with associated staff education and publicity; summer reading programs; licensed database program providing access to indexes, abstracts and other reference sources along with the full text of newspaper and magazine articles; and a range of library staff continuing education activities. Note, state libraries have also used statewide initiatives to introduce innovations not proven to everyone's satisfaction, e.g., initial introduction of the Internet.

[46] E.gs. of competitive grants include: integrated library systems; programs targeted to special populations; multimedia collections and e-books; library local and wide area networks; and digital preservation of specialized collections.

[47] One librarian commented, "There is less of an incentive now to solve a problem every library faces locally for one library only."

[48] A recent evaluation of the Florida Division of Library and Information Services use of LSTA funds (MGT of America, 2001, p. 1-4) "shows that 86 percent of libraries maintained their funding after LSTA grant funds ended, and that 60 percent of libraries used LSTA money to attract additional partners."

[49] A state librarian, echoing widely heard comments at the state library level, remarked that "State libraries find LSTA much easier to administer than LSCA [the predecessor federal program] with less red tape and shorter, more focused, annual reports; with greater flexibility to use funds as needed within the state and to compliment other existing state (both government and private) and national (E-rate and Gates) initiatives." Most agreed that federal level guidance, direction and requirements were helpful. For example, the requirement for a five year information technology plan generally "brought planning to a higher level" and "trickled down to local libraries who created their own five year plans even before the E-rate requirement."

Specific Issues from the Field

State and local library managers interviewed repeatedly raised several issues mentioned for consideration here.

Put the "C" back in the Library Services Act

A consistent request from local library administrators in every state was to reinstate library construction funding including: construction of new buildings, renovation of existing buildings and modification of existing building to make them suitable for new information technology use.[50] Library construction was a part of the predecessor library services funding, the Library Services and Construction Act (LSCA). A not insubstantial portion of the demand for new or modified library facilities is driven by new public interest in libraries and the new information technology they offer.

Experienced State library administrators note that local libraries did not make use of available LSCA funds during the final years of that act. Local library administrators who considered making use of LSCA funds during that period responded that there were several key problems:

- Too much red tape: The large number of regulations and paperwork local library administrators had to address;
- The need to meet federal construction standards that were higher or different from local requirements;
- Library administrators (and local building contractors) lack of familiarity with the federal regulations compounded by the absence of local (to include state) assistance to advise in addressing the paperwork and regulation; and
- Meeting the Davis-Bacon Act requirement that building projects pay the prevailing union wage rate.

These problems made local firms reluctant to bid on construction projects and raised the cost of construction. One library director currently nearing completion of a major multi-year renovation of his downtown library headquarters stated that the additional building costs required to meet federal standards made accepting LSCA funding very unattractive. Local library administrators suggest that if federal-level library construction is reinstated, libraries should only be required to meet state or local building standards.

Speeding Up Competitive Grant Process

All of the state libraries visited use LSTA Grants to State Library Agencies funds to offer competitive grants in well regarded program areas. There were, however, three related concerns consistently raised by local library administrators who had won awards about state-level administration of competitive grants.

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[50] This has also come to the attention of Congress. See for example, H R 1803 and S. 671 the proposed Andrew Carnegie Libraries for Lifelong Learning Act.

Reduce time between award and first payment

Is there any way to reduce the time between grant application, grant award and receipt of the first payment? In the case of one state, 2000 year applications were due in March; notification, contracts and initial payment were not made until July/August, more than four months later. Several local library administrators suspected the delay was caused by parent agencies at the state level (e.g., State Department of Education) rather than the State library. The delay created reluctance and uncertainty with vendors supplying technology and services required for the award - when would they be paid? The delay meant fewer months to initiate the project before the grant cycle was over (and evaluation reporting due).[51]

Lump sum rather than distributed payments

Is it possible to receive initial lump sum payments of grant awards rather than a number of equal payments over the course of the grant? A significant initial outlay is often necessary to purchase information technology for certain projects. The small payment installments presently received from LSTA competitive awards are not enough to allow vendors to release the equipment purchased. Several library managers reported having to bank initial grant payments until they had received enough money to pay vendor costs for technology. This again delayed initiation of the project.

Alter evaluation reporting deadlines

Is it possible to alter reporting deadlines evaluating the project or the type of evaluation required? A number of local grant administrators indicated it was common to finally make a project operational at the end of September with an evaluation report due the end of November. Such a report could only be based on a month to six weeks of data, leaving insufficient time to reasonably evaluate a project.

Local library grant administrators did not view extending the grant cycle from a year to 18 months as a useful way to address any of these issues.

Improve Reporting on Proof of Concept Innovations to Aid Diffusion

State libraries *may* need to re-think their present approach to diffusing innovation to other libraries within the state (and beyond) resulting from LSTA (and other) grants. The researchers regularly encountered instances in every state where library managers were seeking solutions to a problem already addressed or solved using LSTA sponsored funding elsewhere in the state (or

[51] A senior state library manager provides a state library view, "When we went from LSCA to LSTA we cut down the time between notification and award by a lot. Right now, after we send out a grant notification, we next send out a grant agreement to the libraries that are being funded. They have to take the grant agreement through their signature process. Sometimes that means going before the County Commission which alone can take 1 to 2 months. In any case, once we get the grant agreement in hand, it takes the state [not the state library] 4 to 6 weeks to cut the check and mail it to them. Hence, it's hard to believe that the state library could get money to them any faster than 3 or 4 months. That should not keep them from starting implementation. We tell libraries that they can implement and obligate local match as soon as they get the grant agreement signed. Most county governments here will let the library obligate local funds knowing that the grant money is on the way."

nation). For example, one site visited was seeking ways to create a mobile Internet training lab while in another part of the state a library was successfully using a mobile wireless laptop local area network training lab. In another case, one state was successfully using video conferencing to promote staff and local business training. In another state, the State library was wondering if video conferencing was a solution to the same problem. In most cases, State library personnel were aware of the innovation but not the need for knowledge of it elsewhere.

Speeding up the diffusion of innovation is a perennially difficult challenge. The following suggestions are made with the following caveats:

- LSTA, and particularly State library partners are already extraordinarily successful at rapidly moving innovations into day-to-day practice. The issue here, can a good program be improved?
- There is no need to ask the innovator to do more evaluation. A different type of evaluation or an evaluation by an outside team may be more appropriate.

State libraries might consider the following possible improvements to the LSTA competitive grant process:

- **Better identify the innovation**: Is a successful grant proposal (be it a competitive grant or portion of a statewide initiative) an innovation within the state or nationally or is the grant for some other purpose?
- **Evaluate innovation grants differently**: Evaluations are done for many audiences and to meet many requirements. Perhaps for innovative grants the audience for the innovation and their needs should be paramount and other audiences should be minimized or eliminated.
- **Consider developing a (nationally) standardized innovation reporting form**: The idea is to identify key information other potential adopters need to know and supply it including: basic contact information, explicit problem statement, how innovation may help and then did or did not help with what outcomes used as proof for what audiences, tasks and timelines, budgets and sources of revenue, and key issues faced. An implementation manual (with prior instruction for how to produce one) may be a more appropriate evaluation than traditional approaches.
- **Consider who, with what incentives, should do the evaluation**: Is the innovator an evaluator or would it be better to involve someone else? Is additional financial support an incentive? Should an outside team comprised of the next likely users of an innovation be a more appropriate evaluation team? How can the evaluative burden be reduced?
- **Statewide (and national) innovation dissemination plans**: Plans for the dissemination of innovations may need to be developed and implemented within each state or nationally. Perhaps the State library should disseminate to all library managers a descriptive list of grants with innovative components (including grant title and contact information, problem(s) addressed, innovation, and means used to determine success) at least twice annually. Once when the grant is awarded and once when the grant is complete and a manual ready. Innovation announcements and implementation manuals (if produced) should be mounted on a State library-supported web site or web-based

database. Selected innovators should routinely be invited to present their innovations at statewide or regional meetings (where this practice does not already exist).[52]

- **Innovator as paid consultant**: The State library should consider formalizing a program to link the library innovator in a consulting role (including modest honorarium) with other libraries seeking to use the innovation.

There may well be better ways to accomplish the same end. The important point is that presently a very successful program of moving innovations to libraries may be weakened by not paying closer attention to the end-stages of the innovation process.

Need to Increase Funding to Get Attention and Get the Job Done

Librarians interviewed with some knowledge of the history of federal funding of public libraries always began their comments by noting the unfunded titles of the LSCA legislation. Many noted the increased opportunities and demands added by making LSTA funds available to all types of libraries (while at the same time commenting it was long overdue). All uniformly endorsed the American Library Association (and others') efforts to obtain additional funding. In addition, several clusters of comments from local librarians interviewed may be worth attention:

- **If you want to play, you've got to pay**: As one librarian summarized, "if you [the federal government] want to get our [libraries'] attention and the attention of our community, you need to increase the funding." Another librarian, reacting to E-rate filtering requirements, commented, "you can't expect public libraries to go up against the pornography industry in this country with what E-rate is paying us." As will be discussed later, most library managers believe this type of federal involvement in controlling information access to be inappropriate.
- **Ensuring the national provision of core services**: Many librarians posed these questions (without answering them): Are there core services that every library should offer? Is it time for a national library card? Positive answers could only be achieved with a substantial increase in federal funding. Some suggested that one way to achieve consistent core Internet-based services and programs throughout the country at every public library was with federal funding and through programs that set standards and aided those communities who couldn't achieve them.

Often, sometimes after a couple of hours of pointing out *this* chance to make a difference and *that* possibility to improve library services as a result of the introduction of the Internet, the local librarian would make her case: "Look, we've started something here. But I don't think our local resources are going to be enough, we're going to need help to deliver, we've got to find a way to deliver on the promise."

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[52] Existing national (e.g., IMLS National Awards for Library Service program <http://www.imls.gov/grants/library/lib_nals.htm>) and state (e.g., Florida's Exemplary Library Projects <http://dlis.dos.state.fl.us/bld/grants/Exemplary/intro.html>) efforts accomplish two necessary evaluative purposes: acknowledging achievement and demonstrating (to legislators and others) value for money spent. The focus here is on a vital third purpose of evaluation: dissemination of innovative ideas.

E-rate Funding

Most of the public libraries visited had had initial experience with the Internet "experiment" using LSTA or other funds when E-rate funding began. A real concern for these libraries, when deciding whether to continue the experiment, was how to pay for Internet telecommunications costs and, in larger libraries, how to wire the buildings and pay for network equipment to link Internet workstations together. Already these libraries recognized that dial up access to the Internet was not a viable long-term solution. For another substantial group of libraries, the Internet looked great. When, however, would their local telecommunications infrastructure be able to provide a connection, any connection – let alone one that was affordable and reliable?

The announcement of the availability of E-rate funding in technology areas where libraries needed additional support swayed many libraries to continue the Internet experiment – long enough so that adoption of the service became likely. E-rate funding, in conjunction with a range of other efforts, stimulated the Internet connectivity market enough so libraries formerly without Internet connections began to obtain them – or upgraded those they had. The impossible began to seem possible, particularly for those who were uncertain about the role of Internet services in their library.

Many of the state and local library managers interviewed for this study considered E-rate funding to be an essential financial component of their program to provide Internet resources and services to their communities. There are problems. This section presents findings from these interviews regarding E-rate's basic accomplishments, problems with the application process, and general E-rate funding issues including Internet filtering. Table 3.2 indicates the amount of E-rate funding distributed to schools and libraries in the states visited. Table 3.3 indicates the amount of year 2 and 3 E-rate funding distributed *just to libraries* in the state visited.

Table 3.2 E-rate Funding by Year for Site Visit States.
(Includes Both Schools and Libraries)

State	Year 1 (1/1/98-6/30/99)	Year 2 (7/1/99-6/30/00)	Year 3 (7/1/00-6/30/01)	Totals to Date (1/98-6/01)
Colorado[53]	$13,945,827.03	$10,746,905.61	$14,151,611.43	38,844,344.09
Florida[54]	$48,003,718.99	$70,025,729.93	$53,435,601.25	171,465,050.17
Michigan[55]	$56,927,837.75	$78,750,949.83	$55,986,989.19	191,665,776.77
Pennsylvania[56]	$49,659,748.96	$55,585,771.50	$52,219,956.50	157,465,476.96

*Data obtained from SLD web site <http://www.sl.universalservice.org/funding/>

[53] For further information on the Colorado State Library E-rate program efforts see: E-rate resources. <http://www.aclin.org/webtele/erate.html>. For Colorado State Library technology planning efforts see: <http://www.cde.state.co.us/cdelib/technology/techplan.htm>.

[54] For further information on the Florida Department of State. Division of Library & Information Services. Library technology & E-rate resources. see: <http://dlis.dos.state.fl.us/bld/Library_Tech/BLD_libtech.html>.

[55] For further information on the Library of Michigan. Universal service fund efforts see: <http://www.libofmich.lib.mi.us/services/usfinfo.html>.

[56] For further information on the Commonwealth of Pennsylvania Library's E-rate efforts see: <http://www.pde.psu.edu/usf/index.html>.

Table 3.3 Year 2-3 E-rate Funding Only to Public Libraries in Site Visit States.				
State	**Year 2**	**% of Total**	**Year 3**	**% of Total**
Colorado	$679,988.02	6%	$785,067.90	6%
Florida	$3,465,892.71	5%	$2,997,379.03	6%
Michigan	$1,802,025.30	2%	$1,549,710.25	3%
Pennsylvania	$2,088,736.90	4%	$1,552,281.43	3%

*Study team analysis of SLD data for further information see tables in Appendix B.

E-rate Funding Basic Accomplishments

Despite a range of programs and a multi-year effort to equalize the existing telecommunications infrastructure throughout the United States, the levels of service available and their affordability remain quite diverse. Several library managers in rural areas in different states commented that E-rate funds have made it possible for some libraries to have a phone for the first time, let alone an Internet connection!

E-rate Took Access Costs Out of the Internet Service Equation

Most of the library managers interviewed said that E-rate funding took Internet access costs out of the equation when trying to decide whether to offer Internet services, at what bandwidth, and when to start. Often, covering Internet and telecommunications charges were critical as local funding was not available for this recurring cost. E-rate funds enabled many libraries to sustain Internet services initiated by equipment grants from other funding sources. As a result, more libraries were able to offer, or continue to offer reliable Internet services sooner. Said differently, some libraries visited might not have been able to continue to offer Internet services even though they had the operating equipment, because they did not have the resources to pay telecommunication charges that E-rate covered.

E-rate Meant Higher Bandwidth, Sooner

Many of the libraries visited used E-rate funding to purchase access to higher bandwidth Internet connectivity[57] sooner than they otherwise could have afforded. As a result, use of the Internet was more reliable and, as one library manager noted, "reluctant new users are having a more satisfying experience and as a result are returning." Higher bandwidth enabled libraries to better meet increased user demand. Higher bandwidth allowed the ready use of graphical workstations in libraries, a completely different and better experience than monochrome terminals – thus enabling libraries to attract more new users. Higher bandwidth allowed libraries to continue to attract home users because the library's bandwidth was better.

A recent partnership effort in Oregon illustrates how E-rate funding can be leveraged to provide broadband connections to every public library in the state. The State of Oregon Enterprise Network (SOEN) agreement[58] between the state and Qwest and a group of other providers allows any public library (school or local government) in the state to obtain T1 access

[57] E.g., from dial up to 56kbps to ISDN or T1, etc.
[58] For further information see Scheppke (2002).

for $397 a month. That cost will be further reduced because the State will file E-rate applications for school and public library SOEN participants (saving them the hassle). It is estimated that a library with a 60% E-rate discount will pay $167 per month. In addition later this year, the cost of installing a new data line and providing telecommunications equipment will be covered for public libraries eligible for Gates funding. The state librarian summarized, "Thanks to SOEN, I believe every public library and school library in Oregon should be able to have reliable, affordable, broadband connections, beginning this year."

Were all of the new users attracted by the higher bandwidth E-rate provided, members of the group most likely to be affected by the digital divide? This was likely the case, at least in certain locations. As example, see, the Library Research Service (2001, May 8) study that found that 62% of Colorado library patrons surveyed while in the library responded that they lacked Internet access at both home and work.

No Internet? It Can't Be Had, Your Solution is Wireless or You Don't Want Connectivity

Today there appear to be only three reasons why a library is not connected to the Internet:

- An Internet connection of any type can't be had until phone or cable connection is brought in. This is rare.[59]
- The library's only immediate Internet connection solution is wireless. E-rate, inexplicably (at least to every library manager interviewed) does not fund wireless connections.[60] Wireless offers the best or most attractive solution to a number of libraries. In one case among the libraries visited, in a rural setting, the local grain elevator subsidized the wireless connection. In another case, an urban setting, the library introduced wireless technology, the city subsequently adopted it and funded the library as well.
- In very rare cases, a library does not have an Internet connection because local library administration has chosen (for whatever reason) not to provide the service.

One library administrator summarized, "E-rate has allowed libraries to experience better service [bandwidth] than they could otherwise afford for less money. E-rate has made the cost of a telecommunications connection less of a factor than availability." A rural librarian echoed a common sentiment, "E-rate funding may not be much, but we need it. Now, if E-rate would only fund wireless solutions!"

[59] E-rate has not provided enough of an incentive for the market in these cases. State library administrators believe that the next hope for these unconnected pockets will be when state telecommunications plans extend to these areas. Telecommunications providers, in order to obtain the states business had to agree to serve all of the states' governments (including libraries and schools). See the Oregon example above, Scheppke (2002)

[60] "This is no accident given the tax source of revenue for E-rate funding," several state library staff noted.

The E-rate Application Process: From Promise to Nightmare

Public Library Applicant Experience

Library managers who tried or completed the E-rate application process were not shy about volunteering their experiences with the process – and the picture wasn't pretty. The application forms and procedures were perceived by most library applicants (or their surrogates) to be inordinately "complicated," "cumbersome," "uneven," "ambiguous," and "constantly changing from funding cycle to funding cycle" (which did not follow state or local calendars or fiscal norms).

The requirement that applicants post a 470 form announcing that they intend to purchase telecommunications services and then having to wait 28 days was (and remains) a huge interference in local purchasing and procurement practice in several states.[61] A Florida State library program manager notes that, "It is one of the single most important reasons why libraries in [state name deleted] fall out of the E-Rate. The last thing a county purchasing administrator is going to do is adhere to a rule that forces them to interact with a complicated filing system on some Washington DC non-profit's web site."

In addition, the application process, "...wasn't like filing your taxes with the IRS, where you spend a lot of time filing one time and you're done for a year, it was continuous and unending. First, there was a series of forms each taking a lot of time. Then when you think you are done with the forms the phone calls start. And then when you think the forms and phone calls are done they audit you and you have 10 days to respond!" The person that filled out the library's E-rate application often changed from funding cycle to funding cycle. The task had low appeal. One State library E-rate coordinator estimated that there was a 50% turnover in who fills out the application forms at local public libraries from year-to-year.

Is it possible to simplify and streamline the application process?

Several experienced grant writers agreed with this appraisal, "For the amount of work it takes to complete the paperwork it is not worth what we get." As one veteran grant writer commented, "I have not dealt directly with a federal agency to obtain library funding until E-rate. It seems so ponderous...it is just not worth it." Although the agony of the process and procedures for obtaining E-rate awards were often described as "onerous and abnormally time consuming," most participants were willing to spend the staff time to obtain the awards because they needed the money.

Library administrators, when they weren't expressing frustration with the existing application process, seemed to be willing to tolerate some start up uncertainties and mistakes. "After all, one does not create a perfect multi-billion dollar federal assistance program overnight," was the sentiment among some. There was widespread sentiment that the

[61] State law may require a shorter posting period. For example, in Florida bid law says you post your bid advertisement for 10 days, not 28. The federal Office of Management and Budget rules say that when there is a conflict between state & federal rules you go with the more stringent. However many states honor this OMB ruling in the breach – that is, not at all.

cumbersome application needed reform and streamlining. Two suggestions, focused on applications for Internet access and telecommunications subsidies, recurred:

- Reduce the number of times when a library must apply to *only* occasions when a major programmatic change is proposed, for example, an upgrade to the library's network is planned. As one administrator commented, "Make the first application tough if you must. But don't make us re-apply when nothing on our end has changed."
- Reduce local public library involvement in the application process. Library administrators pointed out that much of the process involves data and certifications about the local library situation available from other federal and state agencies and/or transactions with service vendors. Why isn't it possible, many library administrators wondered, for the only time a local library thinks about E-rate to be when they thankfully read the amount of the subsidy deducted on Internet service provider and telephone bills?

There was considerable concern that these programs continue with future upgrades and program development.

All library managers hoped that the federal E-rate funding cap would be raised from its current level of $2.25 billion and that there would be continued expansion of the list of eligible products, services, and vendors. A key concern was sustainability of the program. E-rate funds affect a library's operating budget, so knowing reliably how much money is coming (for sure), and when, matters as much if not more than variable increases that cannot be sustained or predicted. A second key concern was whether any program expansion would make a complicated application process still more complicated. All agreed that streamlining and simplifying an already cumbersome process was the first priority. Some library administrators were hopeful that future E-rate awards would be expanded to include other related needs, such as workstation replacement, software, licensed databases, training, promotion of Internet services, etc.

Basic Problem: Libraries' Situations Far More Complex than Imagined

So why did a good program idea become so complex and cumbersome in implementation? There are many possible answers. Many of the interviewed library administrators believed that E-rate program administrators did not realize, assume or imagine the complexity and variety of local library circumstances related to the areas covered by the E-rate program, when they operationalized federal legislation into a grant program.

Many Libraries Had Others Complete the Applications

Many libraries did not apply themselves for E-rate funds due to the complexity of the application process. Instead, individual libraries relied on surrogates including library system administrators, local school districts, and individuals or small companies. In one instance, Hawaii, the State library completed E-rate applications for the fifty-branch system. In Wisconsin and Indiana,[62] the State library or a state-level consortia filed E-rate applications that made individual library access to higher bandwidth at a reduced cost possible throughout the state. In

[62] These states are examples reported to the study team, other states also crafted similar arrangements.

several instances, librarians were unsure whether they had received E-rate funds because, as it turned out, the library system applied for them.

Library systems and consortia played critical roles in several instances ensuring that:

- Members applied and/or the system applied on behalf of the members, and that the post application process was monitored with E-rate officials;
- Members had assistance with technology planning and that individual library plans were coordinated to maximize their utility within the system; and
- Members received discounted rates with vendors based on aggregation of demand and other factors.

Library systems and consortia efforts worked best when they were coordinated with State library efforts. Library systems and consortia efforts were essential when the State library was overwhelmed or failed to act.

One of the library managers who rated the E-rate program[63] the highest was a rural library director who hired a retired teacher to do the E-rate application paperwork for the library. "I just answered a couple of questions and agreed to pay him $50 an application page, and he hasn't billed too regular, mind, and the discount appears on my phone bill every month."

Library systems frequently applied for their members yet many of the library system managers interviewed did not believe that there was any ready provision for aggregating applications for all libraries in a system, all libraries in a state, or all schools and libraries in a town or county.[64] A library system administrator had to fill out a separate application for each system member rather than one application for the system. One veteran library grant writer for a library system summarized: "It was a minimum of 10 hours per library, once I got going. The application process involved difficult to fill out, confusing, and unnecessarily repetitive forms."

Technology Plan Requirement Results Mixed

The E-rate application technology plan requirement was, for many libraries visited, "already in the pipeline" when it was announced.[65] Technology plans were deemed useful for

[63] Note: The library only applied for the telecommunication and Internet access subsidies.

[64] This appears to be a common but untrue assumption. An E-rate Task Force member notes that, "this is a myth … a number of library systems successfully aggregate their applications including: the Westchester [NY] Library System, Missouri Research and Education Network (MOREnet) <http://www.more.net/>, Indiana is aggregating for all schools and libraries using the state network, and the Florida Information Resource Network (FIRN) <http://www.firn.edu/> aggregates on behalf of all libraries and schools using the state backbone for Internet access." He continues, "What this says however, is that the program rules are not well understood by applicants. If they were better understood, these statements would not be made. So, how do you counter misinformation in a complex program?"

[65] For state library efforts related to technology planning see: Ryan, Joe. *Information resources for information professionals: State Library Administered Technology Planning and Funding.* <http://web.syr.edu/~jryan/infopro/techplan.html>.

large libraries and library systems "where coordination and issues of equity matters more." Many of these large libraries already had these plans in place prior to the E-rate program.

Technology plans were less helpful for small libraries. One rural librarian commented, "Look, I had one workstation, I unexpectedly got a second from the health department. There is no likelihood of more. I don't know where I will get replacements. What's to plan?" Yet librarians in similar circumstances in other states receiving Gates Family Foundation awards often lacked the planning skills necessary to take full advantage of the technology offered. It is likely that small and rural library administrators may not have received training in the type of information technology planning useful to them. As a result, the well-intended E-rate technology plan requirement was either overkill or had little impact.

Many library administrators noted that there was no apparent use made of the technology plans by those who required that the plans be submitted. One State library manager notes that this is not entirely true, "If you talk to one of the less than 5% of the applicants who received an FCC audit, you will find out that the plans are very, very important. Not having something covered in a technology plan is the fastest way to lose a lot of money."

Library Administrators Perceptions of E-rate Program Administrators

State and local library managers in every state independently offered essentially the same impression of the E-rate program administration staff:

- "There must be high turnover there;"
- The staff "lack familiarity with what libraries do, library organization, operations or basic library terminology;"
- "Sometimes the SLD staff didn't know their own program;" and
- "I could never talk to the same person twice in a row, which meant that I had to go through the same explanation over and over before I could get to the question I really needed answered."

Most library managers reported frustration with their contacts with E-rate program administration staff.

Library managers' comments focused on results at the local level (an improved, streamlined application and payment process) not on who was administering the program at the federal level (be it the FCC or some other federal unit) or how it was structured. The process was onerous, the federal administrative staff were ever changing, hard to communicate with, and often uninformed about their own program and public libraries. All local and State library managers were surprised that the federal administrator of the program did not work more closely with state libraries, the established mediator and conduit between federal funders and local libraries.

Application Barriers May Themselves Cause Unintended Inequity

The E-rate program was intended to reduce potential inequity in access to the Internet by aiding schools and libraries serving those least able to afford these services. Library managers serving these communities regularly asked several questions that may need attention by E-rate program administrators in the future:

- Are E-rate forms and instructions biased in their language and explanations toward schools making the process less clear to librarians and contributing to the feeling that libraries are not equal participants in the process? Many library administrators interviewed expressed agreement with this view. Perhaps this contributed to the widely reported perception during the site visits that public schools had benefited more from the program than public libraries.
- Did the complexity of the application process itself serve to reduce applications from the public organizations E-rate sought most to serve because administrators did not have the time, skill or patience to negotiate the process? How many administrators in the target organizations were willing to read what one administrator in one of the poorest counties in the country described as "forms written by attorneys for attorneys?" One study participant asked, "Did some places look at the opening bar and decide it was too high?"
- Did the application process unintentionally reward those with grant writing skills, or the skill, tenacity, and time (or staff) to deal with the complex regulations and application. Skills that are most likely to be absent in the organizations E-rate sought most to serve, particularly small public libraries? Certainly the most successful applicants interviewed "just worked the process and regulations for all they were worth."
- Did the application process unintentionally reward organizations with information technology (IT) staff and skills, skills most likely to be absent in the organizations E-rate sought most to serve, particularly small public libraries? The most successful applicants interviewed who applied for wiring and equipment funding had technical staff who could accurately assess their present and future technology needs and were ready and able to use the equipment received. Most of the libraries in impoverished areas visited for this study did not have technology staff employed. Most of these same libraries did not report ready access to IT staff in the community.
- Did under-trained E-rate program staff and high staff turnover contribute to unequal treatment of organizations in equal circumstances? State and local library managers in every state frequently volunteered instances in which libraries with identical circumstances received different advice about how to accurately complete E-rate applications and/or received different E-rate awards (in the same funding cycle).
- Comments about the appropriateness of the use of number of students eligible for the National School Lunch Program to establish discount eligibility were common.

None of the questions asked above were tested formally in any way by the investigators. However, study participants regularly raised the issues embodied in the above questions.

E-rate and State Libraries: An Unclear and Undervalued Relationship

Historically public libraries have not dealt directly with federal agencies to obtain funding.[66] This has certainly been true when libraries use the principal (indeed until recently the only) federal library grant program: LSTA. Instead, public libraries have interacted with the State library that interacts with, interprets and applies federal guidance. This has been an extraordinary fruitful relationship for nearly fifty years for at least four reasons:

- Public libraries know and trust State library development administrators;
- State library administrators serve as an effective buffer and a bridge between public libraries and their situations and federal program intent. Said simply, state libraries are masters at making federal intent work in local settings;
- Federal program administrators listen to state libraries as they shape and then implement their programs; and
- State libraries administer their own funding, State library aid, which can be coordinated with federal funding.

The E-rate program is making the transition to a regular fixture, an important, stable source of public library funding. E-rate administrators need to more fully cultivate a relationship with potential State library allies to ensure programmatic success.

State Libraries Contribution to the E-Rate Program

At present, state libraries do not have a formal working relationship with the E-rate administration. State libraries are not formally "in the loop" and they are not compensated for their efforts to make the E-rate program work locally. As a result, state libraries have had to respond not to proposed E-rate initiatives communicated to them in advance by E-rate administrators, but to the cries for help from their local public libraries at the same time or after these libraries learn of their need for help. Said differently, state libraries have been scrambling to make the E-rate program work for their local libraries without reward or compensation. The state libraries visited had:

- Designated staff to be E-rate coordinators, and involved other library development staff often using LSTA Grants to State Library Agencies and state funds to pay salaries and programmatic support until something more permanent could be worked out;
- Established working relationships with their equally hastily designated state department of education E-rate coordinators;
- Widely advertised the E-rate program;
- Identified and assembled accurate data from various sources necessary for public library applicants to complete E-rate applications;
- Closely monitored the E-rate program changes and rapidly communicated them to the state's public libraries. State library E-rate coordinators had to develop their own approaches to obtaining accurate data and interpretations of E-rate regulations, policies and application forms. They were not officially "in the loop;"

[66] Or a non-private company, like USAC/SLD, created by the FCC.

- Created or contributed to State library or state department of education E-rate web sites and listservs to assist local libraries with the application process;
- Conducted numerous workshops throughout the state to alert public library managers to the importance of the program, assisted them with technology planning, and helped them with completing the E-rate application process;
- Willingly worked one-on-one over the phone or in person with public library administrators struggling to complete E-rate applications; and
- Responded to various requests from federal E-rate administrators for data, notably data certifying that certain libraries exist, their address, status, and qualification to receive state aid.

In one case, Hawaii, the State library completed the application forms for the states' fifty public library branches. In Florida, State library staff spent a significant amount of time with one-on-one assistance helping individual libraries complete forms. In another case, Pennsylvania, the State library required all applicants for State library grants to have applied for E-rate discounts.

All of the public libraries visited used and valued the services offered by their state libraries. State libraries want the E-rate program to succeed. They have committed their own resources and re-directed state and LSTA Grants to State Library Agencies resources in critical efforts to assist public libraries to participate in the program. The next step is for the E-rate program to bring state libraries more fully into the effort.

Imagine, a Reduction in Operating Costs

Many of the libraries visited applied for E-rate funding to cover monthly telecommunications and Internet access fees. Several received funding for internal wiring. A few obtained network equipment upgrades (such as switches and routers) via E-rate support. External funders rarely pay ongoing operating expenses (that is assumed to be the local library's responsibility), but E-rate funding is different. E-rate, for most libraries, covers what would otherwise be ongoing operating expenses: monthly telecommunications and Internet access fees. On the plus side, the reduction in operating costs that E-rate discounts bring means the money saved can be used to meet local needs.

On the negative side, a change in E-rate funding has an immediate and direct impact. As one library manager summarized, "When I heard about E-rate my ears immediately perked up. Imagine, a federal program that was going to support my real operating costs. The problem is we can't budget for E-rate. We don't know from year-to-year if we will receive funding, how much we will receive, when we will receive it, or whether the program will be around...worse, E-rate's funding cycles may work for the schools but they do not correspond to our fiscal year or the calendar year...we have to treat it [E-rate funding] like an unanticipated gift." E-rate's promise, if it becomes stable and reliable, is a direct, positive impact on every public library's bottom line. The reality, at present, is that E-rate discounts do not encourage sound planning or efficient use of the awards by libraries.

Filtering

At the time of the site visits, new E-rate regulations requiring an Internet use policy and the use of filters on Internet workstations were proposed and about to go into effect.[67] The study team asked those visited what impact would the proposed filtering regulations have on their participation in the E-rate program?

Situation at the Time of the Announcement of Proposed Filtering Regulations

The study team first asked what the present use of filtering was in the library. In some cases, the library administrator didn't immediately know. Filtering can be done by a vendor, Internet service provider, at the server level or at individual workstations. In some cases (e.g., when filtering is done by the vendor, ISP, or at the server level), local librarians and library users may not be aware that workstations are filtered. In some of the libraries visited users have the option of using a filter or not. Most users prefer unfiltered Internet access. Other libraries visited filtered some workstations but not others. All of the libraries visited had a library board-approved Internet use policy in place prior to announcement of proposed regulations.[68] Many offered at least one workstation that was filtered prior to the announcement of proposed regulations.

Library Administrators had a Range of Views on Filtering

Public library managers offered a range of views on a federal filtering requirement. Only one manager interviewed thought the requirement a good idea. At the other end of the spectrum were comments like the following: "Our community has visited this issue and decided not to filter and we will not revisit it, even if that means the loss of federal funding." Or, "My board would absolutely not apply for federal funding if filtering was required." In Michigan, many of the librarians mentioned that they thought the federal regulations were in conflict with existing Michigan state law, which left filtering decisions to local communities.

Librarians Question Whether Filtering Software Works

Most library managers were dissatisfied with existing filtering software, stating it didn't work or that it required constant tinkering by technology staff to be only moderately effective. Those interviewed offered many examples of how filtering software didn't work. For example, one librarian mentioned the elementary school teacher that had to alter an assignment to learn about the U.S. Virgin Islands when filtering software at both the school and public library would not allow access to web sites containing the word "virgin." One library manager interviewed wondered if federal money might be better spent developing filtering software that worked.

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[67] For current developments see: ALA. Office for Intellectual Freedom and Washington Office. *CIPA*. <http://www.ala.org/cipa/> or Bocher, Bob. Frequently asked questions on complying with the Children's Internet Protection Act. Madison, WI: State of Wisconsin Department of Public Instruction. <http://www.dpi.state.wi.us/dpi/dlcl/pld/cipafaq.html> or Schneider, Karen G. (2002, January). Internet Librarian: E-rate: The agony and the ecstasy. *American Libraries*. p. 94.

[68] This corresponds with national studies suggesting most libraries have policies in place. See for example, University of Illinois (2000) where a survey of more than 1000 libraries indicated that 94.7% had formal Internet access policies.

State Libraries, a Potential Ally, not in the Loop

The confusion over how to comply with proposed E-rate regulations regarding filtering allowed one clear area of needed improvement to surface. Federal E-rate administrators need to establish clear lines of official communication with E-rate coordinators at the state libraries. All of the local library managers interviewed used and valued the assistance of the State library in making sense of E-rate forms and regulations. All of the state libraries visited designated staff to monitor E-rate developments and offer programs to assist libraries with E-rate funding without any compensation from, or official relationship with, the federal E-rate administrators.

When the federal E-rate administration proposed filtering regulations, library managers naturally turned to the State library for advice as they do with the federal LSTA library program. Federal E-rate administrators offered state libraries no special training and provided no special lines of official communication for state libraries to contact. As a consequence, State library E-rate coordinators, these key advisors to the state's public libraries, could not speak with one consistent, accurate, knowledgeable voice. Knowledge about the proposed regulations, the regulatory process, how to interpret the regulation and advice regarding what action library managers should take varied from State library to State library despite the best efforts of State library personnel. Clearly, federal E-rate administrators continue to miss an opportunity to ensure its program's success by helping an ally.

Consensus on Filtering Issues on Several Key Points

Most library managers interviewed agreed on several points:

- "No one wants children to be exposed to pornography in our libraries."
- Most library managers interviewed had observed or heard of instances of users accessing pornography via their library's Internet workstations. However, all believed the number of users accessing pornography at the library to be very small. A few library technology managers reported use of software monitors to sample the incidence of pornography use in their systems. All reported accessing pornography at the library to be rare.
- "Requiring libraries to use filtering software is not a role for the federal government."
- "Librarians should not have to serve as Internet Cops and be policing how patrons use the Internet, I did not sign on to be a cop."
- "If the federal government requires us to filter we will, we need the money."
- "Why make public libraries, whose funding from the federal government does not even merit a line item in the budget, the point men in our local communities in the war against the multibillion dollar pornography industry? My first thought was this was just another unfunded mandate. My second was how can they [the federal government] expect us [public libraries] to win. My third thought was that maybe they don't expect us to win. It kind of sends a message about how serious the federal government is about fighting pornography doesn't it?"

Most librarians believed the issue had received more attention than it merited. One librarian worried about the unintended consequences, "Librarians have made a big effort to change the

public's image of the profession from the spinster with a bun shushing library users. Have we done so only to be perceived as the community's purveyors of smut?"

E-rate and Local Exchange Carriers: Who Will Apply Pressure?

All participants identified key issues that had surfaced during E-rate implementation discussions within the state and that require resolution at the local exchange carrier (LEC) level within the states. For example:

- Some LECs "don't care about working with libraries to participate in E-rate," as one participant noted. As a result, these LECs are not ready and/or willing to facilitate the discount process.
- One LEC requires a 17-page application for local telephone service. As a result, the library in that service exchange doesn't have a telephone.
- Colorado is home to one of the only LECs in county that refused to get an ID number to participate in the E-rate process. The FCC had to threaten that LEC with license loss to get to compliance.
- There is a mixed service bag at best beyond the I-25 corridor in Colorado and outside major population areas in Florida. There are rural pockets in Pennsylvania where even satellite services don't work reliably (although there have been recent improvements).

Thus, there are some fundamental telephone and LEC-based service issues that require resolution in these states. These issues are a particularly pressing issue in rural areas. Who, at the federal and state levels will identify additional LEC issues and apply pressure to resolve them?

E-rate & Libraries: Why Do Libraries Receive So Little? What Can Be Done?

An evaluation of E-rate funding done for the U.S. Department of Education by the Urban Institute[69] paints a stark picture regarding public library participation in the E-rate program. Public libraries only receive about 3-4% of all E-Rate funding support and only about 50% of all eligible libraries apply. The separate analysis of E-rate data conducted by the study team (as found in chapter 3) confirm these findings. Why? What can be done? Table 3.4 divides the responses heard into three distinct areas: policy making (i.e., whether policy matches legislative intent, goals and objectives), policy implementation (whether technical refinements need reconsideration), and policy impact (views on the impact of policy by the library managers affected by its implementation).

[69] Puma, Chaplin & Pape (2000, p. 87). For additional details see Table 2.3 of this report or Universal Service Administrative Company. (2000). Funding commitments by rural/urban statistics and entity type. *Annual report*, p. 38. <http://www.universalservice.org/reports/2000/>.

Table 3.4 E-rate & Libraries: Why So Little? What Can Be Done?	
Why So Little?	**What Can Be Done?**
Policy Making	
Use of school lunch data: Reflects a bias in favor of one type of those affected by the digital divide: poor school children. Public libraries serve poor school children. E-rate regulators did not consider that libraries also serve those affected by the digital divide throughout the community. Those, for example, who might not be poor but blind, might be a neighborhood of low-income seniors without poor children to eat subsidized lunches, and who might live anywhere in the community (or beyond) not just next to the nearest school.	Recognize that libraries do not only serve some in their communities (school children), but are the last and often the only resort for public access to the Internet for all. Devise alternative mechanisms to allow libraries to more fully participate.
School bias: Was the intent of the legislation to favor public schools over libraries (or other institutions for that matter)? Library managers note that the language of existing regulations, applications, instructions, explanations, and examples are mostly designed for public schools. Libraries receive only 3-4% of E-rate awards.	Reconsider the intent of the law and devise regulations and applications to enable libraries to use their unique assets to reduce the digital divided in ways intended by the law.
Equity: Do the present unintended application barriers thwart use by the very organizations E-rate funding is intended to help? The poorest libraries lack the time and expertise to handle a cumbersome, complicated application process. Yet they are the ones targeted for the most assistance.	Match programmatic intent to implementation procedures and application process.

Table 3.4 E-rate & Libraries: Why So Little? What Can Be Done? (Cont.)	
Why So Little?	**What Can Be Done?**
Policy Implementation & Technical Adjustments	
Calculation of internal connection discount rate threshold: Schools have choices on how to aggregate their request for E-rate funding (using school lunch data at the individual school level or district level), and how they pick their vendors. Libraries are limited to the district-wide lunch rate. Therefore, the smart schools structure a service request and choose vendors that favor high poverty schools. Often as a result, libraries do not meet the threshold to qualify for internal connections.[70]	Allow libraries to have the same choices in how they aggregate the E-rate funding requests & vendor choice as schools. If libraries could qualify for higher priced equipment purchases the amount of dollars awarded to libraries would increase substantially. Consider the E-rate task force solution[71] or consider an alternative poverty measure -- if one can be devised – and consider if the intent is to define those affected by the digital divide as equivalent to a certain poverty threshold.

[70] A senior Florida state library manager notes that, "There is only ONE library in the entire state of Florida that gets higher than an 80% discount [the minimum needed to qualify for an internal connection discount]. For Years 3 and 4 of the E-rate program, nobody got internal connection money (for wiring and infrastructure) unless they had over an 83% discount rate. So, the way libraries must calculate the discount hurts our ability to get the large funding commitments required for funding internal infrastructure. The imbalance really shows up when you compare poverty rates as determined by E-Rate vs. the Gates program. For the Gates program, we had 60% of public libraries with poverty rates of 10% or higher, and 23% with poverty levels of over 20% of the population served including libraries with poverty levels over 50%. Poverty rates this high do translate into high eligibility for Free & Reduced Lunch for quite a few schools in any given district. But when you aggregate the percentage for the whole school district, it comes out less than 80%. This is not to suggest that adopting the Gates approach is not without its drawbacks."

[71] An E-rate Task Force member summarized: "E-Rate Task Force requests that FCC allow change in the way public libraries use the school lunch program data to support applications for infrastructure (internal connections). The change proposed would allow a public library, when applying for internal connection (infrastructure) funds for a specific facility, to use the school lunch data for the nearest K-12 school instead of the aggregate discount for the whole school district. That way, a library system would be able to calculate high discounts for outlets that serve high poverty areas and apply separately to support deployment in those facilities. If they are applying for infrastructure for a particular facility, why force them to aggregate the school lunch for that high poverty area with other low poverty areas. After all, the purpose is to serve high poverty. This would make the library calculation a lot more like what the schools are doing. It would begin to level the playing field."

Table 3.4 E-rate & Libraries: Why So Little? What Can Be Done? (Cont.)	
Why So Little?	**What Can Be Done?**
Policy Implementation & Technical Adjustments	
E-rate staff lack knowledge of their program and libraries: Complaints were common about E-rate staff not knowing their own program or library operations. Staff turnover was high. Library managers received conflicting advice. This created the impression that libraries were second class. More troubling, it eliminated certain, easy, access to the principal authoritative source about programmatic information and problem resolution.	Hire E-rate staff with library backgrounds, train and retain them better.[72]
E-rate application favored public schools: Library managers commented that the language of existing regulations, applications, instructions, explanations, and examples are mostly designed for schools.	Provide public library friendly applications, instructions, explanations and examples.
Policy Impact: Library Manager's View	
Simplify Internet and telecommunication discount application process: Library managers wonder why they must be involved so much in the application process and why do they have to apply so often?[73] External data is used to identify qualified libraries, level of need/discount, and qualified vendors are (or could be known). Why doesn't SLD work directly with other agencies and vendors to obtain the data they need and pay the subsidies – public libraries need only see the discount received on their bills?[74]	Many library managers suggested an initial application process in which requirements and knowledge locally controlled are submitted. In subsequent years there are very brief renewal applications unless there are major local changes. Let the E-rate administrators (or their paid surrogates such as the State library or state department of education) assemble or supply needed external data.

[72] Recently, library managers have noticed some improvements in their interactions with E-rate staff. One state library manager hopes that the present SLD staff's "reputation is running behind an improved reality."

[73] The FCC appears to require a new application every year because it does not have enough funds to meet likely demand. If a rollover process was allowed, FCC worries that whomever got their application approved in the first year would continue to take all the available money in subsequent years. This would not allow all potential applicants a chance to participate in the program.

[74] A library E-rate task force member notes that, "To date, the FCC does not seem interested in handing off the application process to the vendor community for fear it would favor incumbent telephone companies over new companies trying to establish a toe-hold in new consumer markets."

Table 3.4 E-rate & Libraries: Why So Little? What Can Be Done? (Cont.)	
Why So Little?	**What Can Be Done?**
Policy Impact: Library Manager's View	
Make the application process easy: Many library managers said that it was easier to tap local sources for the purposes E-rate was intended to fund (Internet and telecommunications costs and internal connections), thereby reducing funds available for other essential tasks. Many felt the application favored those with access to experienced grant writers and local IT staff. Access to these technical staff is least likely in the libraries E-rate most seeks to target. Not all libraries have a public school district IT manager equivalent to rely on for this type of support.	Simply, make the application process easier than the alternatives or the rewards greater. If this is not an option, then make access to paid, experienced grant writers and IT personnel available to those libraries least likely to have or be able to afford them.
Make procurement process manageable: Managers found procurement terms time intense, complicated, and out of line with state or local practice.	Consider using state or local government procurement regulations instead.
Improve library manager's knowledge of their IT infrastructure: Many library managers, or their IT designates, do not know what they have, who provides it, what it costs, let alone how it works or where to start to find out.[75] As a result, they do not know how to begin to determine if they qualify for E-rate.	State library, professional association (both initiated without financial support from SLD), and SLD's own efforts have not fully addressed this issue. It may now be appropriate for SLD to initiate an intense, short-term effort at the state and local level to get library managers enrolled in the E-rate program.

Most of the librarians interviewed strongly support the promise of the E-rate program. E-rate promises to subsidize several key recurring costs to operate an effective Internet service. As a result, public librarians are more sensitive to discussions of programmatic change or funding

[75] A state library development manager recently had this fairly typical experience: "We just spent 3 weeks 'helping' a large county library who told us they could not do the E-rate because the county had a contract for telecommunications and they had to use it. After a lot of "research" on our part, we found out that they, in fact, were not using the county contract but rather a combination of tariffs and a state contract. To get that information we had to talk to the telco state rep, the State Technology Office, and the County MIS people. So, after 3 weeks, a lot of back-and-forth and no compensation from anyone, we were able to get them into the E-rate program. While digging for this information, we found out that the County MIS head had changed. The former County MIS director did not want to be bothered with supporting the library's E-rate request. The new MIS director was keen on it. In some respects, the library is as dependent on county municipal cooperation with the E-rate application process as it is dependent on the school district to share data that determines discounts rate. If you're missing either piece, it's enough to thwart the any attempt to participate."

continuance because a change immediately affects the libraries' bottom lines in this and subsequent years. Library participation in the E-rate program is disproportionately low. There was general recognition by all those interviewed that change was needed to achieve wider library participation. As one library manager remarked: "Start-up woes for a multi-billion dollar federal subsidy program are to be expected. But isn't it time the E-rate administration got it right?" Otherwise, still more E-rate eligible libraries will find it easier to tap local sources for telecommunications and Internet services funding rather than use the E-rate program. This will leave the SLD, and ultimately the USF, in violation of its own mandate.

Bill & Melinda Gates Family Foundation, U.S. Library Program

The Bill & Melinda Gates Foundation U.S. Library Program[76] started in 1997 with the goal of expanding public access to computers, the Internet and digital information in State library certified public libraries that serve low-income communities.[77] Two of the states participating in the present study, Florida and Michigan, received Gates awards in the second round. The other study participants, Colorado and Michigan, are in the third round of funding underway now.[78] Table 3.5 indicates awards made to date to the states visited in this study.

Table 3.5 Gates Fund Awards to Site Visit States

State	Year Award Began	Amount
Florida[79]	1999	$10.5 million
Michigan[80]	2000	$4.8 million (plus)[81]
Colorado[82]	2001	$3.4 million (plus)
Pennsylvania[83]	2002	$5.5 million (plus)

While not the specific focus of the present study, the researchers considered any comments those interviewed made about the Gates Fund and summarize them here. Gates Fund efforts clearly played a significant role in public library Internet services and the reduction of the digital divide. The Gates Fund approach offers a useful contrast to LSTA and E-rate funding. Public libraries were (and are) the extraordinary beneficiaries of all three programs (LSTA, E-rate, and Gates) in operation during the same period.

[76] For further information see:
<http://www.gatesfoundation.org/learning/libraries/libraryprogram/default.htm>

[77] This is an outgrowth of Microsoft's "Libraries Online!" program that started in 1995 to bring computer access to the disadvantaged through public libraries.

[78] For further information on specific public library participants in participating states in the Gates Fund see: <http://www.gatesfoundation.org/libraries/uslibraryprogram/grants/default1.htm>.

[79] Figure from a PowerPoint presentation by Gates fund administrator Richard Akeroyd in a presentation to Florida public libraries.

[80] From: 6/15/00 press release.
<http://www.gatesfoundation.org/libraries/uslibraryprogram/announcements/announce-234.htm>

[81] Figures for Michigan, Colorado and Pennsylvania do not include donated software (from Microsoft), technical support (first year unlimited phone calls to the 800 number, second year a limited number that apparently no library has exceeded.) and training.

[82] From: 11/10/00 press release.
<http://www.gatesfoundation.org/libraries/uslibraryprogram/announcements/announce-299.htm>

[83] From a personal communication from the Director, Bureau of Library Development, Commonwealth of Pennsylvania Library.

There are many characteristics that distinguish the private Gates Fund approach from the federal LSTA and E-rate efforts to aid public library Internet services and reduce the digital divide. The Gates Fund, for example, appears to have worked closely with state libraries to make their initiative work while retaining tight control of how funds were spent. Perhaps the most salient attribute of the Gates Fund may be that of a one-time effort[84] to bring the information infrastructure[85] of the target public libraries[86] up to a minimum standard.[87] In the case of libraries with Gates minimum standard infrastructure or better, the fund supported the next order of magnitude improvement. The Gates Fund approach may well define the limit of what is possible to improve an organization's information infrastructure with a one-time effort.

The benefit a public library derives from Gates funding is best determined by public library staff knowledge of the new technology given to the libraries. Those that will benefit most will be those who understand the technological tools they are given and who have the staff to harness the tools' power, and who develop and offer services to those potentially affected by the digital divide. Those that will benefit least, indeed benefit almost by accident, will be those who have no knowledge of the technology given and do not seek to gain any knowledge.

The Gates Fund planners clearly understood this. A Florida State library manager familiar with Gates Fund efforts notes, "Just as Gates set a standard for services and connectivity in each state, they also had a standard for staff ability. They undertook a HUGE effort to train librarians in Florida and established 20 training labs with the condition that the public libraries that received a lab made a commitment to use it to train librarians in their region." Florida has recently received an additional Gates Fund grant to turn their initial training efforts into a sustainable state-based program.

Gates Fund standards, for example the service, connectivity and staff knowledge standards mentioned above, were influential in raising the bar of standard practice and were used by libraries in their own future planning of Internet-based services.

Already there are several basic benefits evident at participating libraries.[88] All of the librarians interviewed described the program as essential to expanding, sustaining, or in a few cases, beginning their public access Internet services. Gates Fund grants raised the public Internet access norm in most libraries from single workstations to a local area network (LAN) connected to the Internet. Gates Fund grants also raised the norm of how workstations could be used productively in libraries by freeing up the time available on them and broadening what could be done (due to software availability or updated software in libraries already providing such service and access). The number of workstations offered by the Gates Fund grants allowed

[84] Unlike both LSTA and E-rate which are ongoing projects. But note, Gates Fund future intentions have not been stated.

[85] Defined by Gates to include equipment, software, training and at least temporary technical support.

[86] Gates like E-rate targets libraries serving the impoverished. LSTA benefits all libraries.

[87] The standard shifted over the years of fund's effort due to technology advances and based on what is learned from earlier years.

[88] For additional benefits see: Bill & Melinda Gates Foundation U.S. Library Program. Evaluation of U.S. library programs. <http://www.gatesfoundation.org/libraries/uslibraryprogram/evaluation/default1.htm>. See also: Gordon, Margaret; Gordon, Andrew & Moore, Elizabeth. (2001, February 15). New computers bring new patrons. *Library Journal*, <http://www.libraryjournal.com/gatesLibrary.asp>.

many libraries to extend workstation use for the first time (beyond a half-hour, for instance). E-mail use in libraries could be permitted. Users could do word processing (writing cover letters, resumes, letters to friends, term papers), presentations (for school or work), do their personal finances, teach themselves to use a database manager, and even play games! All libraries praised the software and associated training given with the workstations. Both library staff and the public were making good use of software that many libraries would not have otherwise purchased, and many libraries could not have afforded on their own.

Gates: Good or Bad or Not So Simple?

While all public library Gates Fund recipients were grateful, public librarians had two contrasting reactions to the program and its implementation. One group characterized the foundation's effort as "ambitious, highly organized, and generous." A second group labeled the program as "arrogant, insensitive, and inflexible." The contrast was so dramatic that it caused the investigators to wonder if each group was talking about the same program. The researchers heard similar opposing comments in both states that had participated in the program and in two instances from libraries within the same federated systems. Further discussion with Gates Fund participants suggested that these contrasting groups and points of view were determined by the libraries' information technology (IT) planning and implementation capacity.

Gates Fund program implementers in round two appeared to divide libraries into those that had the capacity to plan and implement a networked Internet service and those that did not. Those libraries that knew what they were doing appear to have been sped on their way. Those libraries that did not have access to local IT expertise were given a pre-determined "cookie-cutter" package. In some cases, the package worked just fine, in others the cookie-cutter seemed imposed and out of touch with local circumstances according to those interviewed. For example, one library manager with limited information technology knowledge said, "They told us here is what you get. I told them it wouldn't fit in my library, four networked workstations in a 900 square foot building! And they told us, here is what you get, take it or leave it. So I took it and when they were gone I gave the server to the [local] school district, kept one [workstation] for the staff and used two of the workstations for the public the way I wanted it."

Libraries with available local IT knowledge (whether on staff, or accessible via volunteers, local school district, local government, etc.) all described the same basic experience. "They [Gates library program] told us what they had to offer, we told them what we had planned. Once they knew that we knew what we were doing and they understood what we had in mind, they went out of their way to assist us to take maximum advantage of their program and to help us achieve our goals. They even agreed to give us equipment not originally part of the program offerings so that we would succeed."[89]

Perhaps Gates Fund training needs to begin earlier, prior to libraries making choices about what equipment to accept, and with a different focus at that point. Librarians without local

[89] A state library administrator from the other state that had participated in the Gates Fund program at the time of the site visits reacted to this library's experience as follows, "Generally, we found them more flexible than portrayed here. Where a library was too small to accommodate equipment, they allowed the library to put the equipment in a different branch, or would reduce the award to a more appropriate amount."

IT knowledge available had basic concerns: where can I put the equipment; what knowledge will I need to run it (and who will train me and can I learn what I need to know); what can I do with the technology (including the software); what other libraries are doing with similar technology; and how do I get from here to there? Some of this material is covered at later points in the training the Gates Fund already provides. Some of this material, perhaps in less detail and for a different reason, may need to be covered earlier. Perhaps this training is only necessary for those libraries without available local IT knowledge.[90]

Recent, as this study goes to press, reports of Gates Fund improvements in this area from states in the present phase of Gates Funding highlight another key component of this fund's approach. The Gate Fund evaluated the program from the beginning and quickly modified procedures where possible as problems and issues were uncovered. Evaluation was built into the program and consciously drove programmatic adjustment.

Public Libraries on Technological Training Wheels Again

Getting new and improved technology has not been accident-free. A number of libraries that received Gates funding in Michigan and Florida reported a rash of security breaches after the installation of the Gates equipment. One library security expert summarized the problem this way. "You have all these libraries with new LANS, underutilized capacity on their servers because they are at the beginning of their life cycle, and many libraries with poorly trained or non-existent IT staff. Server technology is new to the local library staff and while they may have been told about potential security problems they ignore the threat. They say to themselves, 'we're too small, it can't happen here.' These unprotected sites are ripe for attacks by hackers or even college kids looking for a place to store their MP3 music files. Librarians need to be made aware of the problem and need training in how to secure their sites."

Other Gates Fund participants interviewed noted the need for more staff to manage the additional equipment – the staff has not been hired due to lack of local resources. Smaller libraries, in particular, noted the need to cope with questions and training needs on a greatly enhanced range of software and dramatically more powerful equipment.

The Gates Fund is raising the information infrastructure bar for public libraries serving the poorest in the country. For many of the participating public libraries, receiving great technology will not be enough to take full advantage of the gift. Ongoing training will be required to take full advantage of what was given and to best serve those in their communities potentially affected by the digital divide. Also, and yet to be determined, is the degree to which the program's accomplishments can be sustained over time rather than being a single infusion of technology.

[90] The study team did not have access to Gates Fund training or materials so lack enough familiarity with the training program to comment more specifically. Rather, the study team reports here on comments and suggestions made by library managers in various stages of participation in the Gates Fund program.

Impact of Public Libraries on the Digital Divide: Status

The realization that access to information technology has a profound impact on quality of life is a relatively new insight. Attempting to provide equity of knowledge and access to a new information technology as it is being introduced, rather than after the fact, is newer still. No one wants to repeat past mistakes. In fact, while the library community can pat themselves on the back for trying, there has been no road map for how to successfully eliminate the digital divide. Public library managers, on the front lines of efforts to reduce the digital divide, have a perspective that national policy makers need to understand.

Defining the Digital Divide

Interest groups support digital divide initiatives in the belief that their group, the poor, minority, rural, handicapped, female, and others are among those affected by the digital divide and that they will benefit. The reality, when viewed from those on the front line of providing knowledge and access to the Internet, may be different. Public librarians define those affected by the digital divide as anyone that enters the library that needs to access the Internet or needs help using it. As a result, which group affected by the digital divide gets served, how, and where and the limits of what users can know may be perceived differently by a library manager implementing external funders' and program advocates' intent.

Those Affected by the Digital Divide can be from Any Group

The people who use the Internet in libraries or who need help using the Internet can be, and are, from any social category imaginable. Of course, there were many at every site visited who the library was the principal or only source of Internet access and training. When the library started offering the Internet often few community members of any social category had access to the Internet or training in how to use it. Study participants later reported that use came from a range of users: wealthy individuals who liked the social interaction that occurred around the workstations, the technologically literate with Internet access at home and work liked the library because it was convenient, and school children flocked to use the Internet at the library after having access at school. Several librarians independently suggested that those affected by the digital divide may not be limited to any single or cluster of social categories. A more pragmatic approach is to help those in need.

Those Affected by the Digital Divide Must Come Through the Libraries Doors – For Now

Most of the libraries visited could only serve those affected by the digital divide (however defined) in their communities if they physically came in through the library's doors. Libraries did not seek out those affected by the digital divide or systematically identify their locations in the community. Libraries did not generally target those affected by the digital divide for Internet presentations or training. Nor did librarians go out into the community to present the Internet or train Internet users. The libraries' existing facilities were already in heavy use – seeking out more users wasn't possible. Training was one-on-one because most libraries visited did not have available clusters of computers or computer labs.

Most libraries are struggling to meet the needs of those who arrive on their doorsteps. This means, at least for the present, that there may well be more affected by the digital divide in communities served by public libraries that are not reached. A clear example in most rural areas are people who live a mile or more outside of the town where the public library is located – their access is less. Those in urban areas separated from their city's library by a busy highway represent an equally under-served group. At present, those affected by the digital divide must come through the library's doors. The next phase must provide the incentives and resources to take Internet training and services to those most in need within the library's community.

Some issues yet to be addressed in order to move the majority of public library Internet services beyond the building walls include:

- Some librarians believe they will never do outreach of any kind. Some librarians believe they can never teach more than one person at a time, or will need training to do so…or its not my job…. Some board members believe libraries should not do outreach and that group instruction is the job of teachers not librarians.
- Many library administrators want to reach out to those affected by the digital divide (however defined) and bring these people into the library. Bringing those affected in for training neither guarantees there are adequate numbers of workstations, nor that there are adequate levels of staffing and that staff are properly trained.
- Some library managers recognize another type of divide. Internet access may be available, but there is nothing of interest there for the divided. When library managers look for digital content that may excite those affected by the digital divide it can be hard to find.[91] They know that local content may be of most interest to those affected by the digital divide, but lack the staff resources to create and organize it. Many would like to be able to develop a library web page with something more than a cute picture and with current library hours, the library catalog, other library services, etc.
- When they think about taking the Internet to those affected by the digital divide they lack the mobile labs required to make it happen, and lack the "gutsy" staff to operate those labs.
- Some libraries are already moving out beyond the libraries' walls to make the Internet a part of the lives of those affected by the digital divide. The challenge is to advance the pace at which they get served.

[91] Children's Partnership. (2000). Online content for low-income and underserved Americans: The Digital divide's new frontier. Washington DC: Children's Partnership. <http://www.childrenspartnership.org/pub/low_income/>.

Certain Efforts to Evaluate the Digitally Divided may Violate the Vulture

Librarians are reluctant to prove the success of their services to those affected by the digital divide if it means asking their users personal information such as income, race or ethnicity, age, what technology they have at home or work, etc. Librarians have learned that being "too nosy" may drive the public away. Librarians don't like to test people's skills, such as in using the Internet. Librarians have learned that their users value the institution because it is not a school, users are not tested, indeed some of their users avoid schools.

Librarians are curious about their users, they want to know how well they are doing to reduce the digital divide, but they know their users preference for privacy and respect their wishes first. Evaluators eager to prove public libraries success, particularly to retain or expand funding, can and must be sensitive to tacit library-user agreements regarding how the institution operates.[92]

Public Libraries Believe Measures of Capacity are Adequate for this Phase

In earlier work (Bertot, McClure & Ryan, 2000), the study team identified several areas in which to evaluate network services: capacity, use, and impact. These are summarized in Table 3.6. In this early phase of developing assessment measures of public library Internet services, several members of the study team suspected that public libraries measures of capacity might well be an adequate way to assess progress.

Participating libraries were reluctant to do more than measure capacity. They believed that the emphasis of the initial phase of public library digital divide efforts was on capacity building, "build it and they will come," rather than showing use or impact;[93] Public library Internet use has been at or exceeded capacity from the start at most libraries and readily apparent to local governing boards so collecting use data has appeared unnecessary. As one library manager summarized, "Look, everyone knows that demand for use of our Internet workstations have been heavy since we started. Anyone who doesn't believe it can come in and look!"

[92] It is possible to protect library-user agreements. See for example, Library Research Service (2001, May 8).

[93] Building it nearby meant establishing the capacity to provide Internet access in reasonable proximity to those most in need rather than just to those who could afford to pay. The degree of access and proximity to need would constantly improve over time. Implied was a prioritized sequence of discreet steps: build capacity, then generate use, that will then yield impact.

Table 3.6 Selected Ways of Measuring Network Services.		
Measure Type	**Definition**	**Example**
Capacity measure	A capacity measure is an input measure that describes the ability of an organization to make use of a networked information resource or deliver a networked information service.	Examples include the number of Internet workstations or the maximum speed of public access Internet workstations.
Use measure	A use measure is an output measure that describes the utilization of the information resource or service. A common approach is to measure the *extensiveness* of a resource or service. That is, how much of a service does a network provide.	Examples include the *number of public access Internet workstation users* or the *number of electronic reference transactions* or *number of visits* to an organization's web site.
Efficiency measure	An efficiency measure relates resources used to service provided. As efficiency measure may relate a capacity measure to a use, impact or outcome, measure.	Examples include cost per virtual visit or Average daily use per public access Internet workstation.
Outcome measure	An outcome or *effectiveness* measure is explicitly tied to the organization's (or unit's) goals, objectives and planning process unlike measures of input, use, and impact that do not necessarily depend on the organization's explicit objectives and planning. A good outcome measure provides data that tells an information manager if a specific unit or organizational objective has been achieved.	An example would be the average weekly number of hours a web service is available given an organizational mandate to serve its customers 24 hours a day, 7 days a week.
Impact measure	An impact measure is a further extension of an output measure that describes the effects of an information resource or service's use on some other activity or situation.	Examples include increased revenue attributed to a company's e-commerce web site, the number employed or the number of newly literate readers as a result of the library's networked information services.

Continued support of public library Internet services to those affected by the digital divide may depend on the degree to which public librarians and others can agree on the measures and logic/reasoning underpinning next steps in assessing public library provision of digital divide services.

Even with Modest Internet Services in Place Benefits Abound

Even with modest information infrastructure in place the benefits from public libraries' Internet services are obvious, widespread across all segments of the community, and diverse in the range of uses. The types of users varied during a typical day: seniors, home schoolers, and unemployed during the day; pre-teens and teenagers after school; and adults, especially families led by children, in the evenings. For some localities, the summers' added tourists and college students trying to keep current with their e-mail increased in-library use. All libraries reported daily observations of users for whom the library was the only source in the community for Internet access. Those libraries with computer labs added telecommuters, local small-business people, and training groups from local government, community organizations, and industry.

It is no small achievement to say that public libraries throughout the country now provide public access to the Internet at free or very limited cost. The change in Internet workstation

availability in libraries from one year to the next was often dramatic.[94] Early studies indicate that many public library Internet service users have no other source of Internet access.[95]

Table 3.7 summarizes the results of that access portraying the selected areas of benefit encountered at most if not all of the public libraries visited (except where noted).[96]

[94] See for example the Library Research Service (2001, February 7) study that showed that in Colorado in 1998, the state's public libraries reported an average of 2.7 computers per 5,000 served. A year later, in 1999, they reported 4.0 such computers – an increase of almost 50 percent in a single year.

[95] Library Research Service (2001, May 8) study found that 62% of Colorado library patrons surveyed in the library that responded lacked Internet access at both home and work.

[96] The study team has been involved in numerous evaluations of the benefits of Internet services that may be helpful to gain a more detailed appreciation, including: McClure et al. (1994), Ryan & McClure (1997), McClure & Bertot (1997), McClure & Bertot (1998), McClure, Bertot & Rubin (1998), Bertot, McClure & Ryan (1999).

Table 3.7 Selected Areas of Benefit Due to Public Library Internet Services.	
Area of Benefit	**Description**
Education	
After school and homework helper	After school, libraries are overwhelmed with students needing to use the library's workstations to complete school assignments, or continue learning on their own or learning subjects that their school district can't teach. Even college students sent and received assignment information while visiting home.
Expanded collections, expand minds	The Internet, coupled with the licensed databases offered by many states and library systems, greatly expanded the access to information students and teachers can use. Already early studies suggest improvements in student achievement as a result.[97]
Summer reading & summer learning	When school recesses for he summer students flock to the library to continue their education. In many of the communities visited, there is no other place to go. The Internet is an essential added dimension to their continued learning.
Educational technology	Educational games and a wide variety of new educational technology is often available at the library and by using the Internet.
Distance education	Librarians discovered this use of the Internet as they tried to obtain MLS degrees and certificates for themselves. They quickly learned that they were not alone in their needs for education from remote institutions.
Informal learning	The library is noted as the one sure place in the community where one can continue to learn for the sheer joy of it, to satisfy one's curiosity or to satisfy a personal need. The Internet has dramatically broadened both the diversity of opportunities and the depth of learning possible.
Literacy	
Literacy for all ages	Whether you are an at-risk pre-school student preparing for kindergarten, a family wanting to read together, a citizen seeking basic information technology literacy skills, or an adult seeking to learn to read; the public library's computers and the Internet have become an essential part of the process. Local public libraries provide community members with the basic information literacy skills necessary to obtain employment, conduct business, and improve quality of life in the new digital age.

[97] See for example, Library Research Service (2001, July 1).

Table 3.7 Selected Areas of Benefit Due to Public Library Internet Services (Cont.).	
Area of Benefit	**Description**
Employment	
Job preparation	Many citizens use the library workstations to prepare cover letters, thank you notes, resumes, etc.
Job seeking	Citizens use, and in some cases are required to use, Internet-based job posting sites using the public libraries workstations. At least one state employment service required application via the Internet and library staff showed people how.
Re-skilling	Citizens have used the library to add basic computer and Internet skills to their resumes so as to be more marketable. Migrants and summer help were trained to use the Internet at the library in several locations in cooperative programs with local or state governments.
Telecommuting	In some cases, public libraries supply telecommuters with office space and equipment so that they can work from the library rather than commute.
Small Business Assistance	
First introductions & equipment purchase advice	Small businesses were first introduced to several new information technologies by going to their local libraries. Business people went to the library to obtain advice and consumer information on IT products and services. Several librarians remarked that businesses "come to us for advice and training to learn about the Internet and e-commerce and e-information." At the library, according to one business user, "People get to use and learn today's technology." This, of course, is not true at every library…but it could be.
RE-SKILLING OF EMPLOYEES	In some cases, businesses unable to train their own employees in the use of basic computer software rely on the library. Employees, including senior and middle-managers, came to the library to learn "what they were afraid to show they didn't know at work."
Access to government small business assistance	Small business people regularly use the Internet to learn about assistance programs, obtain advice on running a business, etc.
Investment Center	A surprising (at least to the library managers interviewed) use of library Internet workstations has been to obtain investment information and to make actual stock and other trades.
Tourist Services	
Travel preparation	Citizens planning a trip regularly use the Internet at the library to learn about where they will visit.
Reservation booking	Travelers will use the Internet at the library to make their reservations.
Maintaining contact with home	When traveling, citizens will use the local library in the community they are visiting to stay in touch with events and people back home.

Table 3.7 Selected Areas of Benefit Due to Public Library Internet Services (Cont.).

Area of Benefit	Description
Community's Digital Presence	In some cases, the first digital representation that a community had was provided by the library. In other cases, the library organized various community-based sites into community pages. In still other cases, librarians advised community organizations in how to establish a web presence of their own.
Library Image	The introduction of the Internet brought in many new users, brought many old users back, and retained those already using the library. Several commented that their Internet service helped to restore the public library to the center of their communities' life again.
Consumer Services & Advisor	
E-commerce introduction	Many citizens received their initial introduction to e-commerce using the library's Internet workstations…and they continue to come back to shop.
ADVICE ON PURCHASES	The library has become a common place to go to search the Internet for comparative shopping and consumer advice.
Stay in touch	E-mail is by far the most popular use of the Internet and libraries offered citizens both young and old, rich and poor, a way to stay in touch. One librarian told of a father who could no longer travel being able to see his daughter's art work for the first time because it was being shown on a web-based virtual art gallery that the father could access at the local public library. Several reported users who found a lost loved one using the Internet at the library.
Resource Sharing	The Internet has dramatically improved a library users ability to locate an expanded range of needed information at remote sites and arrange to obtain it in a continually shortening period of time.
Local Government Partner	
Introduced the technology	In some cases, it was the library that introduced the Internet to local government, trained local government officials and agencies, designed the first government web sites and provided other advice and assistance.
Shared technology and technicians	In some cases, the library provided or shared access to Internet technologies and technical support.
Provider of Access to Government Information	Public libraries provide access and assistance to locate and use federal, state, and local government information. This is particularly important when the source of the government information does not have a local presence. State and local libraries also assist governments to establish an Internet presence, organize government information and train staff.

Table 3.7 Selected Areas of Benefit Due to Public Library Internet Services (Cont.).

Area of Benefit	Description
Window on the World	The Internet allowed citizens, immigrants, migrants, and foreign visitors across the US to access the cultures and nations of the world first hand. Immigrant transition was eased with expanded language materials and the ability to keep in touch with events and people back home. The study team was surprised at how frequently rural library managers commented on the importance of this area.
Patient & Health Information	Health information providers found a new way of locally disseminating health information. Health information providers in several of the states provided donated Internet workstations so that local citizen could access web-based health information.
Center for New Technology Introduction	Citizens went to the library to learn about and try new information technologies including: computers, modems, the Internet, faxes, scanners, digital cameras, etc. Citizens also went to the library for training and consumer advice. One user commented: "People get to use and learn today's technology here [at the library]."
Local History	The Internet has allowed local history information to be more widely available and distributed than ever before and there is great interest. Digitally preserving local information became a greater priority. Public library introduction of Internet services also made it possible for participating libraries to become creators of information, particularly information about the library, its services, and its community. Libraries were creating unique local history resources.
Community Pride Source & Migration Reducer	At many of the sites visited, users of the Internet service regularly voiced how it made them proud of their local communities. For some, the comparison with other places in the world left them happy that they were where they were. For others, the Internet service brought enough of the world's riches to their doorsteps that it reduced the need to roam. For many, their view was summarized by this library users comment, "The library's Internet service makes me proud to live in such a future looking place." One rural library user commented, "We no longer have to go out into the world, we can have as much of the world as we want right here."

Impact of Public Libraries on the Digital Divide: Status Summary

Public libraries, leveraging a range of external funds, successfully introduced basic Internet services to almost all of the communities they serve in an amazingly short period of time. Already the Internet services introduction has born rich fruit. The service is heavily used by a diverse array of people for an incredible range of purposes. The promise of the Internet has been demonstrated. The questions for the future are:

- Can public libraries sustain and expand their Internet services?
- Can public libraries reach out beyond its doors to community groups most in need?
- Can various federal and state programs be re-energized to better support public library services in the networked environment?
- Can the coalition of partnerships that enabled Internet introduction be preserved and enriched as new opportunities emerge?

Discussion of these and other areas follow in the next chapter.

Central Role Played by State Libraries

State libraries played a central role in the introduction of public library Internet services to reduce the digital divide. Key facets of the state libraries' role include:

- Champion of library innovation;
- Principal library developer;
- Leverager of external funds;
- Standard setter and regulator;
- Educator and technology consultant;
- State level aggregator of problems and solutions; and
- Guarantor of equity.

Without State library involvement many libraries would not have Internet services today and no public library Internet service would be as effective.

Champion of Library Innovation

The state libraries visited have used LSTA and their own funds to stimulate a competitive innovation process among each state's libraries. There is a statewide context in which innovation is viewed as possible, desirable, and normalized. Innovative ideas are discovered and tested early as a result. An established mechanism for moving proven innovations into regular library practice exists in each state. Public library managers don't have to travel far to "kick the tires" of any new idea and talk to peers they know and trust. The introduction of a major innovation such as the Internet has a much greater chance of succeeding, succeeding earlier, and having a greater impact as a result.

Principal Library Developer

Moving good ideas into practice and sustaining them takes a great deal of hard, behind-the-scenes-labor. These activities include:

- Being there, knowing the libraries involved, their staff, their needs, the communities, what is possible;
- Monitoring of current national developments and alerting of libraries;
- Willingness to learn what it takes to be one step ahead of public librarians' demand for training and technical support;
- Establishment of a communication and training network;
- Problem solving including one-on-one hand holding when required; and
- Motivating when things look bleak.

The library development staff at the state libraries visited started in the trenches and succeeded before assuming their present positions. Their experience and enthusiasm has launched many a trial balloon into flight.

Leverager of External Funds

Introducing public library Internet services required a range of public and private, external and local funding. Each source of funding was for a different purpose and no one source could meet all needs at a local public library, let alone in a region or state. The State library in each of the states visited stepped into the role of helping to leverage the individual funding sources to achieve outcomes much greater than warranted by the amounts committed. Key facets of the state libraries' leveraging role included:

- Identifier of sources of public library Internet service funding;
- Developer of plans to coordinate the use of funds and communication of these plans to public library managers;
- Being a funder. State libraries knew the terrain and spoke the language of fellow funders. State funds could be used to supplement and fill in the gaps that emerged as a result of other funders activities;
- Assisting funders to fine tune objectives, plans and implementation;
- Sensitivity to the intent and objectives of the various funders and willingness to assist funders to achieve their goals;
- Employing effectively the State library's library development unit to supplement external funders activities; and
- Being a trusted intermediary between external funding sources and local libraries.

The state libraries "leveraging of funding" role is perhaps the most undervalued, least understood, yet most significant role played by any of the key participants in the introduction of public library Internet services.

Standard Setter and Regulator

State libraries could use their limited ability to regulate public library practice to promote practices essential to public library Internet service introduction. State libraries regularly develop standards of practice and regulations that may get incorporated into requirements to obtain state aid. For example, the Commonwealth of Pennsylvania Library required libraries applying for state grants to have applied for E-rate funding.

Educator and Technology Consultant

A key factor that contributes to the success of the local libraries in moving into the networked environment is State library education and consulting services to support local libraries. These efforts result in significant benefits for local libraries even though state libraries can only devote limited time and resources to accomplish these activities. Indeed, the study team found numerous examples where library administrators, when referring to their technology development, began their sentence with, "Were it not for the State library consultants, we could never have [numerous activities]…"

State Level Aggregator of Problems and Solutions

Some problems and solutions during Internet service deployment could best be identified and addressed at the state level. Perhaps most important was the development or licensing of databases and the full text of reference sources and magazine articles, often using LSTA funding, so that they could be made available via the Internet to citizens within the state. This meant that every library and library user, whether rich or poor, had access to the same collections (at least in these areas) as the best libraries. Rural libraries could provide access to collections in these areas that were as good as their rich urban and suburban cousins, often for the first time. State library identification of problems and brokering of state level solutions were critical to a successful adoption of Internet services.

Guarantor of Equity

The state libraries visited do not have the resources to guarantee equal access to information services at every public library in the state. That does not mean they cannot try. For years, the state libraries visited have quietly figured out ways to enable libraries that wished to adopt proven technological innovations to do so. The process might not be immediate, the funding often stretched all participants to the limit of their means, but the task was accomplished. The State library has played a significant role helping late Internet service adopters get up to speed. State libraries play a critical role in the adoption of many innovations into public library practice.

Chapter Summary

The present chapter reported on site visits to more than fifty libraries in four states: Colorado, Florida, Michigan, and Pennsylvania involving interviews with over 100 library managers including: the state librarian, senior State library staff, and public library managers. Research questions addressed here include:

- What was the nature of public library actions to reduce the digital divide over the most recent five years?
- How did public libraries make use of external national-level funds in this task?
- What role did state libraries play?
- What were specific benefits and impacts from these various funding sources?

Overall, the site visits demonstrated a range of significant impacts and benefits that resulted from LSTA, E-rate, and Gates Fund programs. Moreover, the extent to which libraries leveraged these funding sources was also significant. The next steps state libraries, public libraries, and external funders may need to consider are discussed in the following chapter.

CHAPTER 4: CONCLUSIONS, NEXT STEPS & RECOMMENDATIONS

This chapter offers a number of next steps and makes recommendations based on the range of data collection and analysis activities presented previously. These suggestions are made in the context of what is a very promising start to the introduction of a new digital age in U.S. public library services to their communities and, in particular, services to those affected by the digital divide.

LSTA State Program: A Model Federal Program for Funding Libraries

The message from the state and local library managers interviewed is simple: LSTA Grants to State Library Agencies funding, guided by IMLS and managed at the state level by state libraries, works well, with only minor changes suggested,[98] but LSTA needs to be funded adequately. Those interviewed stressed both the program's basic accomplishments and the approach used to achieve them. Their single unified complaint was that the program is significantly under funded given the opportunity and need, citizen demand, and its proven success. There was widespread support for the American Library Association's efforts to secure additional funding and their suggested changes.

E-rate Funding: Essential to Local Operations, But Needs Fine Tuning

Most library managers agreed that the E-rate initiative was targeted to assist with crucial operating expenses – Internet and telecommunications charges, wiring and basic network equipment. If the digital divide was to be reduced, the E-rate initiative was well aimed to make an important contribution. Sadly, the program's procedures turned to nightmare when it came to the overly "complicated," "cumbersome," "unending" application process that did not recognize public libraries unique mission in their community, libraries frequent lack of local grant and IT expertise, and an approach biased toward public schools. One senior State library manager summarized, "When you combine the poverty measure (school lunch program eligibility), with how it is calculated (at the school level v. district wide for libraries), and staffing differences (most schools have IT staff and administrative staff who can fill out forms), it's no surprise that schools get most of the money."[99]

There was widespread agreement that public libraries had not participated fully in the E-rate program. The question then became, what is to be done?[100] Frequently mentioned improvements included:

- Simplify the application process;
- Adjust administrative staffing, practice and regulation that presently favors public schools: For example, allow libraries to have choices similar to schools in how to

[98] E.g., adding construction funds

[99] It is worth noting that none of the library managers begrudged the schools any E-rate funding they received. These managers used public schools only to illustrate how the E-rate program treated libraries differently and had a different impact. Library managers would regularly conclude their comparisons with statements similar to this: "Schools have been and remain our [public libraries] partner community, public institutions with important, different, but related, missions."

[100] For further discussion see Table 4.4

aggregate their request for E-Rate funding and how they pick their vendors so that libraries can more effectively compete for internal connection discounts;
- Get clear and accurate information to the library community; and
- Find a way to fund support for libraries that do not have staff or time or technical expertise to make the application process work for them.

The pundits said "why do you need to train people to ask for money from a $2.25 billion fund?" The pundits were wrong. The evidence is clear that training and more than training is necessary – not only for library managers, but for SLD staff as well.

The contrast between the E-rate initiative and the approaches taken by both LSTA and Gates Fund is compelling. LSTA and Gates both have or support efforts on the ground to promote application to the initiatives, tailor the program to the need, train staff to use the resources provided and serve user needs. A State library administrator describes Gates Fund efforts in Florida, "Gates put together a strike force made up of their staff for Florida but also used technical staff at FIRN [State Department of Education Internet provider] and us at the State library. There was no problem that couldn't be solved with that approach. And they weren't filing forms. They were building networks!!" Both LSTA and Gates learned they needed to make this type of effort if their programs were to succeed.

Perhaps it is time for a short term E-rate strike force to be deployed to state and local libraries. There is clearly a need given the complexity of the application process, and/or the inability of local library managers to understand their IT infrastructure and how it might relate to the E-rate program and its application process. The strike force would be on-the-ground advocates with decision making authority to encourage library participation, dispense accurate information, and solve problems. Making the effort for a year will bring public libraries over the initial hurdle of understanding their IT needs, relevant program benefits, and how to apply. Once libraries are shown how to appropriately participate they will continue to do so.

Public Libraries Are Not Public Schools

In terms of the E-rate, external funders need to grasp a basic idea: public libraries are not public schools. Public libraries differ from schools in several key ways:

- Mission: Schools mission is education. Libraries mission is information. Libraries benefit from educated users. Schools require information to educate. Public libraries select acquire, store and preserve, organize and present information. Schools use information to educate. Local communities shape public library mission. State and national standards shape school curriculum.
- Who public libraries serve: Public libraries supply information that schools, businesses, governments, churches, non-profit organizations and citizens of all ages need for a range of public and private purposes. Public schools educate children in the core areas essential for citizens to function. Libraries supply information for all citizens and groups to thrive. Public schools are mandatory for some. Public libraries are open to all. Anyone with an information need can come to the public library, and they do.

- When libraries operate: Schools operate part of the week and part of the year. Libraries operate year round and, when they can afford to, seven days a week. Some libraries are even offering live reference assistance seven days a week, twenty-four hours a day.
- Funding: Even though public schools serve fewer citizens, for less hours, on much narrower topics, their funding is substantially greater than public libraries.

Public schools have a narrow, yet deep mission, serving a population during a specific stage of life – generally ages five through eighteen. Public libraries serve everyone at all ages. If you don't have private access to the Internet (at home or work) in many communities, the public library is not the last resort, it is the only resort. Where else can you go for public Internet access if you are a pre-schooler with parent in tow; an adult or senior, or a student when the school doors are locked, or just for personal enrichment? Poverty rates, however determined, are both superfluous and irrelevant in these common cases. If you want to reach those affected by the digital divide, however you define it, in any community with a library, you fund the public library's Internet service in an as efficient and effective manner as possible. To do anything else is dithering in the view of many of the library managers interviewed, and frankly we agree.

Next Steps for Public Library Internet Services Requiring External Funding

The study team asked site visit participants for next steps that they were considering for their libraries over the next several years. Table 4.1 presents a summary of the next steps regularly mentioned by participants. The table is organized around recurring areas of concern when developing digital information infrastructure including: technology, content/collections, organization of information, public services, public training, promotion, staff, staff training, finance, management and evaluation. The table is representative, but not comprehensive, of next steps state and public libraries plan. The table offers potential external funders a sense of the directions public libraries are heading.

Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide.		
Area (Description)	**Next Steps**	**External Support Needed**
Technology:		
Buildings – In every state new buildings or building renovations were commonly being contemplated. Internet services often provoked the need to upgrade buildings to house the equipment and wiring required or build or refurbish because the Internet service made the library relevant to the community in a new way. In many areas, libraries have played important and unanticipated emergency housing roles during disasters.[101]	Support is needed from many sources to build or renovate but perhaps a fresh look is needed at the types of stimulus and incentives that can be offered.	Putting the "C" (construction) back in federal funding programs in some form may be a wise and needed effort.
Bandwidth – As use increases, the Internet connection speed will need to be upgraded.	Ensure that no library is without access to telephone and better than 56kbps Internet access.	Key are changes by state and federal regulators, as well as funders such as the SLD for E-rate.[102]
Replacements – Of workstations and associated technologies. Much of the initial equipment will need to be replaced during this next period. Both Gates Fund & E-rate technology plan requirements ask public libraries to identify replacement costs for three years and document budgeting.	• Needs assessment of libraries with replacement policy to determine gaps. • The problem may not be in recognizing the need for a plan but in not having local funds to cover the costs. When combined with upgrade costs, libraries may have a difficulty developing a technology plan that reaches beyond the most basic improvements. At present, the situation's severity is unclear.	• State library standards may be needed (where they do not already exist) requiring a plan that the library meet a realistic workstation per population served figure, and proof in budget. • Monitoring the extent of the problem as it becomes apparent over the next 5 years will be critical.

[101] A senior state library manager provides a snapshot of future facility space needs in Florida. "If you assume the need for 1 workstation per 1,000 residents as we have been advised by library construction consultants, we need to add 10,800 workstations in Florida libraries. If you allocate 35 square feet per workstation we need an additional 378,000 square feet to accommodate the workstations. Using an average of $100 per square feet for facility space we will need $37,800,000."

[102] For example, finding ways to increase library participation in E-rate internal connection funding.

Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Technology:		
Upgrades – Improve and add equipment to meet service needs and provide for group training. Libraries cannot reach out to targeted populations (mobile or fixed) if computer clusters (presently lacking) are unavailable. Prior upgrade grantors, notably Gates Fund, may not be available in the future.[103]	• Continue technology planning requirements. • Identify and encourage potential external support. • Demonstrate utility of small group workstation labs and community technology centers (CTCs)	State libraries, using LSTA and other sources may need to champion the use of small group computer labs for staff and user training, and outreach. Most promising are mobile wireless laptop labs. These labs may be located successfully in the most space-constrained small library.
Integrated library systems (ILS) – Promise to tie internal library operations, external collections and services, libraries of all types and users together in unprecedented ways at home, school, work, and in the library.	Rolling out inter-operable, compatible ILS within systems, regions and states will be a major effort over the next several years. Developing and deploying the technology is only the foundation piece in a complicated process.	State libraries, using LSTA and other sources will need to play a role similar to the conversion from card catalog to the first automated systems for the roll out to be successful and equitable. At issue, can small libraries afford complete and fully functional ILS systems.
Document delivery – Rapid transport of remote, non-digital materials becomes more important as ILS provide location information.	Matching document delivery capacity and efficiency to the demand created by ILS introduction is the challenge.	State libraries, using LSTA and other sources, will need to continue to play a central role in improving document delivery services and agreements.

[103] A senior state library manager in Florida offered this snapshot of and method of calculating that state's need for workstation upgrades. "We estimate Florida public libraries have approximately 4,205 public access workstations. Library construction consultants Daro Wiley and Cecil Beach advise libraries to use a standard of 1 workstation per 1,000 residents. Using this standard, Florida public libraries have a deficit of, or need for, an additional 10,800 workstations. We would need $18,360,000 to add these networked workstations, cabling and software assuming a cost of $1,700 each. This figure doesn't include necessary facility space, staffing, telecommunications or desks and chairs."

Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Technology:		
Furthering library customized interoperability: Includes promoting hardware, software & other standards. A related area includes the support of efforts to develop and use open source software such as Linux.[104]	Developing and enforcing system and state-level standards for hardware and software interoperability will only increase in importance as network and ILS operations become the norm.	• State and federal support will be needed for what is a problem *larger than libraries*. • LSTA and other sources should offer modest support for the enabling of library-specific, open source, applications.
Digital preservation: Transferring significant non-digital information housed locally (e.g., historic local newspaper collections) to a digital environment is a key local library concern. In addition, digitization of collections greatly expands access to unique library materials and is a major contribution of libraries to the universe of knowledge.	Perfecting cheap and efficient digital preservation technology for use at regional centers within the states is underway. Decisions about where to digitally store the materials and organization of digital records for enhanced local and national access also are underway.	State libraries, using LSTA and other funding sources, have pioneered efforts in this area. Continued funding to develop effective digital preservation techniques is necessary.
New technologies:[105] - ILS - Video conferencing - E-books - Virtual reference - Virtual libraries - Something really new and unexpected!	The need to identify, test, and promote innovation remains strong. The need to ensure that those who cannot afford proven innovations can obtain them remains equally strong.	State libraries, using LSTA and other sources should continue the successful competitive grant process. Attention should focus on developing systematic plans for dissemination of locally proven innovations within the state and beyond.

[104] For an introduction see: Open source systems for libraries: Getting started. <http://oss4lib.org/readings/oss4lib-getting-started.php>.
[105] For one current view of technologies that may affect libraries see: Guscott, John. (2001 Spring & Summer). Top technologies affecting libraries, part 1 & 2. *Library Futures Quarterly 1* (2,3).

Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Content/Collections:		
Basic Digital Reference Collection – Libraries displaced purchasing of traditional reference collections in order to introduce the Internet to their community. The trade-off was worth it most feel. The Internet provides access to a larger basic reference collection than most public libraries could afford.	The challenge is to move local efforts up to national quality. Models exist, such as the *Librarians Index to the Internet* initially funded by LSTA and the California State Library. The goal is a basic public reference collection web site available to all public libraries.	National level coordination and sharing of state and local efforts is needed.
Licensed databases: a very successful program in many states involves state or system level licensing of databases for use by area libraries.	An expanded effort to license commercially published databases should be introduced to all states.	Successful programs often began with LSTA fund stimulus and were subsequently funded by state legislatures as the program's utility was recognized.
Specialized collections: External funding of general collection development has never been possible due to limited funds even though the need is great in poor libraries. Targeted collection building has had an impact.	• Acquire targeted collections that use new IT (e.g., DVDs, MP3) or those designed for special groups or those with special needs (e.g., visually impaired). • Development of digital content of interest to low income, low reading level people is lagging.[106]	State libraries using LSTA and other sources have run successful programs with little funding in this area. These efforts should continue.

[106] See for example the work of the Children's Partnership (2000).

Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Organization:		
Web site development: A web site is the public face of a physical organization in the digital world. Yet many libraries have no web site or only a token presence. Local governments, schools, businesses and nonprofit organizations also lack digital representation. Public libraries need to organize an enhanced digital presence and assist others, too. State library web sites can (and in some states already do) provide important access to state government information through government information locators (GILS). The organization of information is a core library role.[107]	The goal should be that every library has its own locally developed and maintained web site. These sites should permit users at home, school or work to make use of the library in ways formally limited to those physically present in the library. That local librarian knowledge and expertise should be spread to area organizations that need similar assistance.	State libraries, using LSTA and other sources, have assisted a number of librarians to develop library web sites. It may be time for different approaches to assist the remaining libraries and move all libraries up to the next incremental level of web site development.
Simpler interfaces for common tasks: Users at small libraries and branches need to function on their own with minimum assistance. Are there ways to make their experience both easier and richer?	Can software be devised to allow someone with no training obtain useful answers to classes of frequently asked questions in public libraries? Think of it as an automated teller machine (ATM) for libraries.	Basic, pragmatic research does not get done unless there is external support. This may be one area worthy of attention with application in every library both here and abroad.

[107] See for example, Janes & Rosenfeld (1996) and St. Lifer (1996).

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Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Public Services:		
24x7 digital reference: Includes the provision of reference services 24 hours a day, 7 days a week to users at home, school, work, or the library using digital reference collections.	Prototypical services are underway. Various portions of these services will be adopted during the next period.	Investigate consortia models to share costs & develop policies; explore strengths and weaknesses of various types of digital reference services in light of local needs; and test digital reference services measures. Move reference services closer to point of need, if not the desktop then perhaps via kiosks and community access programs. Develop better ways to publicize services.
Services to targeted populations: Including distant education, digital divide affected, health ed., home schoolers, investors, job seekers, literacy, local government, parents, seniors, small business & summer reading groups.	Basic approach is to systematically develop Internet-based services useful to target groups within a region, state or the nation. Excellent local models exist. Systematic attention needed at state & national levels.	This area is ripe for partnerships with other public and private organizations. Who will actively seek those partners at the federal and state levels? Who will then cooperatively work to produce quality digital products?
Public Training:		
Targeted user training: Libraries are a natural (if not the only) place in the community to obtain training in use of the Internet and its resources. Most libraries visited lack the facilities (space and clustered workstations), staff and training to be effective.	Models exist for training the community in the effective use of various Internet services. Equipping library facilities and staff with the capacity to adopt these innovative programs locally is the next big challenge.	There is widespread interest in community technology centers (CTCs) among a range of external funders. Libraries are often overlooked as sites for CTCs. Who will systematically seek out those funds at the state and federal level for public libraries?

Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Promotion:		
State and national advertising campaign: Citizens have been introduced to the notion that the library is a different place, a place to learn and try out the new information technologies like the Internet. It is time to fix that notion in the public's mind through statewide and national mass media campaigns. Local publicity, flyer, newspaper and even radio promotion can often be handled by librarians. A state or national mass media campaign is out of financial and technical reach for public libraries.	Several of the state libraries visited had experimented with mass media promotions of libraries and librarians with mixed success. Costs are high and training in this area often minimal. Getting the word out about libraries remain critical.	State and national efforts to promote the new library and librarians should receive greater funding and media attention.

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Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Staff:		
Temporary staff: Small libraries, rural libraries and urban branch libraries are chronically understaffed. Librarians are often reduced to being custodians, just keeping things running, rather than providing services for which they are trained. Temporary workers funded by other agencies are an option for some libraries in the absence of local support.	Library managers need to consider these programs to meet staffing needs.	A wide variety of federal and state workforce investment and other programs exist in which libraries might participate.[108] A related problem is that existing library staff, as well as temporary staff, may not be trained. A training program tailored to these staff is needed. Some of that training could be delivered via the Internet.
Volunteers: Libraries that have successful volunteer programs are noticeably different and better than those without. Running a good volunteer program is an art for which training is needed.	A volunteer program should be an integral part of every public library. Note: This does not imply that volunteers should be substituted for needed paid staff.	Some library managers need training in running successful volunteer efforts.
Circuit riders: Certain expertise may be in such high demand (technical skills) as to be out of reach of many libraries or needed only occasionally (advanced Internet searching techniques) by smaller libraries. In a surprising number of cases, a librarian (or other skilled person) brought in for a short period of time, as a circuit rider traveling from library to library, may improve library services significantly.	Circuit riding programs exist in several states and should be adopted by others. States should consider establishing programs where local needs for short term assistance can be matched up with expertise willing to "ride the circuit" to meet demand.	Some state libraries have funded these programs using state and LSTA funds.

[108] Programs include: Experience Works (formerly Green Thumb <http://www.greenthumb.org/>), AmeriCorps/VISTA <http://www.friendsofvista.org/section1.html>, SeniorCorps <http://www.seniorcorps.org/index.html> and many others.

Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Staff Training:		
Staff training is one of the greatest ongoing challenges faced by library managers. Perhaps the most difficult situation is in small and rural libraries. There is widespread recognition that trained staff are a crucial component of new service delivery.	• The introduction of the Internet has left a profession barely coping with the need to translate old skills in a new domain and to learn completely new skills, all while on the job. A solid catch up is the minimum required. • Satisfactory answers must be found for whether the new technologies permit effective and efficient learning in local libraries on a par with traditional means.[109]	• Pennsylvania has adopted continuing education requirements in order to qualify for state aid. Other states are considering such regulations. • Continuing funding of innovative delivery of learning will be required. • Staff training is, in some ways, the least desirable to fund because there may be little tangible to show immediately. Staff training remains the most important need at the moment.
Finance:		
Budgeting for big purchases: At the heart of the introduction of new technologies, aside from the risk of the unknown for the early adopters, is the large and unusual cost for startup. Many libraries do not plan and budget for these large purchases and so must continue to rely on outside sources for assistance. This, despite E-rate and other technology planning requirements designed to encourage such budgeting. With new buildings, renovations, replacement costs, upgrades, or an ILS, it is time for all libraries to address this issue.	• Getting local boards and library managers to step back from the day-to-day and recognize this recurring finance problem, and address it in whole, or in part, is the next step. • Devising attractive savings plans for public libraries in this area, perhaps partially subsidized, might further encourage saving for future large purchases.	• What incentives can external sources provide local managers to budget for these large purchases in advance of the need? Will some type of matching program work? • Are there alternative financing vehicles, low interest bonds, loans or some other means that public libraries may use to reduce the burden of financing these large one-time expenditures?

[109] Web-based training programs for library staff have been developed by several states, some with funding from LSTA/IMLS National Leadership Grants. Among the states who have instituted such programs are Idaho, Kentucky, Maryland, Nebraska, and Ohio. These programs represent an effort to enable public libraries to fill critical shortages of trained library staff, particularly in isolated rural areas, and to improve staff skills.

Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Finance:		
Library foundations and friends make a difference: The study team was struck by the obvious difference between libraries with endowments and active friends groups and those without.	Those libraries without foundations and friends groups need to establish them, taking advantage of the successful models that already exist.	• Remove any legal and ethical obstacles to allowing public libraries to obtain and manage private funds for public use. • What incentives can external sources provide to assist foundations and friends succeed? • What are the essential characteristics and operations of successful foundations and friends groups that every new group needs to know and adopt? How can this information be delivered effectively to new groups? • Major contributors/donors are needed to prime the pump with large donations as these new groups get under way.
Fees for service: Libraries offer a range of digital services and many librarians have acquired a range of skills valued by local government, non-profit agencies, and the private sector. They could offer more, particularly in rural and depressed areas where commercial alternatives are lacking. Libraries remain reluctant to charge fees or the fees charged do not correspond with the costs to maintain or enhance the services offered.	Librarians and their partners need to address the question: what is for the public good, what is a private good, and what is necessary to sustain or enhance the library as a quality, sustainable, institution? Then operationalize the legal and funding mechanisms necessary to put the resulting conclusions and recommendations in place.	• Addressing the question may require external funds. • Changes to existing law and regulation may be necessary. • Prototype services may need to be tried before being unveiled to the larger library community. • Librarians will need training to simultaneously manage fee and free services, and to assist their staff and users to understand the logic of charging for services.

Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Management:		
Planning: External funders introduced technology planning into many public libraries through funding requirements.	Many library managers and governing boards, particularly in small libraries, need training in effective technology training *tailored to their circumstance*.[110]	• External funders should consider the needs of library implementers when making awards: requirements should be reasonable given size of award and capacity of staff. As much lead time as possible should be given when changing program requirements. Requirements should be constructive and with a rationale offered to those who must meet them. • Funds should be distributed promptly and in a fashion designed to maximize their use.
IT management: Gates funding raised the bar on information technology available in even the smallest libraries. As a result, it raised the level of IT management decision-making necessary, for which many library managers lacked preparation or knowledge. Note: technology training is not technology management training.	Find and train an IT manager at every public library in a program targeted to the local context. This manager may be staff (preferred), a partner from another agency, or volunteer.	• A range of public and private approaches to this problem have been explored. These need to be assessed for effectiveness and efficiency, and be expanded as appropriate. • External funding must play a role although outcomes are often hard to measure immediately. Otherwise, funder efforts in other information infrastructure areas will not bear fruit.

[110] Effective technology planning approaches exist and are slowly diffusing through the public library sector. See, for example: Mayo (1999) and Nelson & Mayo (2000). But the IT planning needed at large urban libraries may be different from that required at small rural libraries. Librarians interviewed wanted pragmatic training tailored to their settings and issues.

Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Management:		
Policy making: A range of policies will be needed during the next phase of the roll out of public library Internet services.	There is a need to summarize and integrate recently gained knowledge in this area.	It may be appropriate to convene research agenda setting meeting in this area involving principal researchers, funders, senior state and public library administrators, and other interested parties.
Coordination of effort: Library management in exciting times is complex and stressful. Some do it better than others. Why?	Successful management practices need to be more rapidly and systematically diffused to library managers using a range of vehicles. State libraries serve as a nexus for improving library management practice and their efforts need to be expanded.	Sustained external funding is needed to target library management and governing board practice using traditional and innovative mechanisms.
Evaluation:		
To sustain a funding relationship:	What information do the principal funders wish they had to continue and expand their funding relationship with public libraries?	Significant national funding programs are at turning points. Perhaps now is an appropriate time for an assessment and conversation among funders, state and national library administrators, and evaluators about how to better show the success of our funding relationships?

Table 4.1 Summary of Next Steps for Public Libraries to Reduce the Digital Divide (Cont.).		
Area (Description)	**Next Steps**	**External Support Needed**
Evaluation:		
To promote innovation:	Focused attention may be needed on disseminating pragmatic, standardized information of use to those thinking of adopting an innovation within a state and across state boundaries.	External funds may be needed to standardize innovation information collected and set-up model state and national dissemination approaches. One part of this effort will be re-directing existing efforts in this area.
To orient and improve: How am I doing? What is the competition up to today? What's next? What planned improvement among a range of options will give me the best benefit? Development of network measures in this area is in a pioneering stage with more work necessary.[111]	Develop an ongoing program of assessment and evaluation of services; engage in constant environmental scans; share more effectively information among libraries as to programs, successes, and options.	Establish a national clearinghouse for sharing data, impacts, assessments and other information about the role of public libraries in reducing the digital divide.

[111] See for example Bertot, McClure & Ryan (2000).

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Maintaining the Internet Competitive Edge at Public Libraries

Public library managers are very conscious that they are in a race to provide Internet services that are, in some ways, better than what can be obtained at home, work, school or elsewhere. A competitive edge can result from an improvement in any of the information infrastructure elements noted above.[112] Library managers commonly mentioned present public library advantages in technology (including: bandwidth, software, workstations, associated equipment like printers, scanners, or digital cameras), staff expertise, or public training. These advantages were not uniform across all libraries visited.

An important consideration is the need to coordinate improvements across all of the information infrastructure elements rather than focusing on any one element hoping for a quick, short-term gain. External funders who seek to reduce the digital divide may need to ask two interrelated questions:

- How will a proposed initiative affect those information infrastructure elements the proposal will not support? For example, will a grant for technology upgrade require staff or public training?
- Can the existing capacities of the various unsupported information infrastructure elements adequately support the proposed new improvement? For example, can existing levels of public training adequately support the introduction of an integrated library system?

In general, a change in one information infrastructure element will affect the others. Sustaining elements must be a certain minimum capacity to allow success proposed changes to other elements.

Leveraging External Support to Serve those Affected by the Digital Divide

It is clear that no single funding source, by itself, would have introduced successfully a public library Internet service as rapidly and effectively unless that funding source was leveraged with others. Fortunately, with the assistance of state libraries, funds were leveraged to create an information infrastructure capable of delivering a sustained service rather than a piece of equipment to the public. Present evidence further suggests that no organization, no matter how deep the pockets, can fund by itself the type of effort that will be needed to make the next incremental improvements in library Internet services possible. It took the leveraging of funds from multiple sources in order to begin the process of reducing the digital divide and it will similarly take the leveraging of funds to continue efforts to eliminate the digital divide.

Equipment Wasn't Enough

Public library managers and funders learned as they implemented Internet services that installing a piece of equipment was not enough. Rather, a means had to be found to embed an information infrastructure around the new technology to enable a sustained service. Different

[112] Those elements include: technology, content/collections, organization of information, public services, public training, promotion, staff, staff training, finance, management and evaluation

funding sources had to be leveraged to rework technology, collections, their organization, types of public service, public training, promotion of these activities, increase staff or change their function, train staff, finance, manage, and evaluate the new service. Funding had to be identified and targeted to each information infrastructure element in a coordinated fashion.

Coordination Required: Enter the State Library

Someone had to step in and coordinate, influence, or nudge funding for public library Internet services in the right direction. Many state libraries took on these roles and did so without much reward – a concern that should be addressed by external funders in the future. Experience to date suggests that:

- State libraries need to be brought in on any major public library funding initiative if it is to work well.
- State libraries' early reaction to a funding initiative can guide a program's development and can fine-tune that program's implementation process.
- State libraries can assist with program roll-out.
- State libraries manage their own funds that can be used to fill-in programmatic gaps when identified early, when given enough lead time to respond, and when the State library is committed to the initiative.
- State libraries have regulatory power or influence over public libraries that can be used judiciously to persuade libraries to "do the right thing."
- A State library endorsement carries weight with public library managers.

In sum, fund leveraging cannot work well without early State library involvement and support for that involvement.

Coordination Required: Enter the Library System or Consortia

The networked environment provides ample challenges and opportunities better addressed at an aggregated level beyond the local library. For example, why purchase a local library license to a database if a better price can be negotiated at a system, consortia or statewide level of aggregation? There were a number of instances reported to the study team where library systems or consortia played a critical role in making a difference. For example,

- Many library systems and consortia hired personnel to do nothing but complete E-rate applications (as well as apply for other grants including Gates Fund and LSTA State competitive grants) and monitor their progress for system and branch members, thus yielding much higher participation and awards than would otherwise have occurred.
- Library consortia negotiated for their members substantially reduced rates on licensed databases and a range of other services delivered in whole or in part via the Internet.
- Library systems hired expensive information technology staff to provide planning, services and advice to members who would otherwise be unable to afford them.
- Library systems maintained network technology (e.g., server farms) made available to all system members that was too expensive or complex for individual members to maintain on their own.

Where library systems and consortia worked best were when their efforts were coordinated with those of the state libraries. Where library systems and consortia were essential was when they stepped in when the State library was overwhelmed or failed to act. Where library systems and consortia were least effective was when their activities were not coordinated with their state libraries.

Someone Must Have Authority & Responsibility for Seeking External Funds

Clearly, there is untapped support within local communities, governments and the private sector for public library Internet services. The support may be in cash or in a range of creative, equitable partnerships. What is needed is a coordinated group of national, state, and local organizations that actively seek support for public libraries and manage moving the opportunity offered by government, non-profit, and private funders into the (existing State library influenced) pipeline of library planning and public library operations. Recent experience suggests that potential funders and partners all too often had to seek out libraries, rather than the other way around. Further, national and state external funding initiatives require ongoing focused attention to enable successful adoption into library practice.

In sum, who is going to identify the next extraordinarily generous Bill and Melinda Gates Foundation? Who will work closely with the external funders to enable national and state initiatives that work for funders and work for public libraries? Who has the authority? Who has the capacity? Who can engage the state and local public library development efforts to make such a national or state level effort a success?

Libraries Can Delivery a Win-Win for All

The message should be clear from the public library Internet introduction experience, with speed bumps duly noted, that libraries can work with leveraging partners and deliver a win-win for all on a national scale. Funders have their own agendas. Identifying clear sections of the task that a funder can own (and relate to their mission) is essential for leveraging to succeed.

What Better Choice for Local Information Outlet than the Public Library

Creating an entirely new community institution from scratch is far more difficult than re-directing or enhancing the mission of a pre-existing agency. Public libraries succeeded in providing an Internet service where others failed, because the libraries were already trusted members of the community.

External funders, in particular government agencies, may need to reorient their conceptual model of what public libraries do:

> *Public libraries are community centers that exist for the purpose of introducing new government, commercial, and citizen information and ideas as well as preserving and making available old ones that have worked for community members in the past, in any*

format, and for providing training in the techniques necessary to use that information to anyone who cares to take advantage of it.

Said differently, public libraries are trusted local purveyors of external values, ideas, and information in all formats and using a variety of techniques. Public libraries do not endorse products but can introduce new classes of information technology to a curious public. Public libraries, for example, have partnered with government health information providers to deliver local access to quality, needed information. Other examples abound.

Leveraging at the Local Level

Most of the sites visited mentioned instances in which other potential library funders became willing to finance information technology projects once funding from other sources started the process, or after the Internet service was established. Only a few of the more successful libraries did active prospecting for funding. More should, but are unable to do so. Too many libraries looked nationally for program support rather than locally. Too many libraries looked for cash rather than other relevant contributions.

Establish Library Foundations & Friends

A library's chief support comes from its local users, yet many public libraries do not tap into that support nor do so with a systematic, long range plan. Library foundations and friends of the library groups[113] are the principal vehicles available nationally to raise funds for both short and long-term purposes. The study team was struck by the obvious difference between libraries with endowments and active friends groups and those without. In one small public library visited, $5,000 invested for the library in 1910 provides a third or more of its operating budget today. Libraries without a library foundation and successful friends group should be encouraged to start them. Library managers and boards may need training in their successful operation. New means should be found to stimulate the success of these groups.

In addition, libraries are the prime example of doing something for others for free or cheaply. Libraries have learned, and even their partners are beginning to see, that an unequal partnership is no way to sustain a relationship. Libraries need to seek out sustaining partnerships where they receive as much as they give.

Leveraging Models

Each of the stakeholders, in an effort to leverage funds to provide public library Internet services, needs a conceptual framework in which to assess and understand their role and contribution. The key elements necessary to provide Internet services form an information infrastructure. One conceptual framework looks at each element of the existing information infrastructure and assesses what must change in order for a proposed initiative to succeed and who must take responsibility for each required modification. Consider Table 4.2.

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[113] See e.g., Friends of Libraries U.S.A. <http://www.folusa.com/> and their *Sourcebook* <http://www.folusa.com/html/sourcebook.html>.

Table 4.2 Leveraging Model for Proposed Internet Service Improvement.		
Proposed Initiative:		
Infrastructure Element	**Changes Needed to Support Initiative**	**Whose Responsibility**
Technology		
Content/Collections:		
Organization of Collections or Services:		
Public services:		
Public training:		
Promotion:		
Staff:		
Staff training:		
Finance:		
Management:		
Evaluation:		

Table 4.1 suggests a host of next steps and initiatives an external funder might consider. Table 4.2 can provide a framework for identifying hidden costs, unexpected needs for support, potential problem areas and unanticipated issues. Table 4.3 illustrates how another stakeholder, a public library manager (rather than an external funder) might view a possible next step.

Reach Out to those Affected by the Digital Divide in the Community

This initial phase of public library Internet service deployment created outposts of digital access across the country. In order to take advantage of the Internet service, a citizen affected by the digital divide must know the Internet is at the library, know why the Internet might be of use, and the citizen must come to the library to use it. Library managers at each of the sites visited knew of people affected by the digital divide that they do not serve in their communities today. They would like to take the next step and reach out to those in their community affected by the digital divide. There are a range of obstacles to overcome before this next step occurs, including those outlined in Table 4.3.

Table 4.3 One Possible Next Step for Public Library Internet Services.	
Proposed Initiative:	**Reaching out to those affected by the digital divide in the community** by alerting target groups that the Internet is available locally, showing why the Internet is useful, and making the Internet available close to where those affected by the digital divide live and work.
Infrastructure Element	**Selected Changes Needed to Support Initiative**
Technology	• Many libraries cannot meet present demand. New technology must be added to meet present service needs, offer group training (possibly at remote locations), while solving potential space issues. • Web services will need to be added to project library services closer to the community. • The sooner vendors simplify and streamline the management and maintenance of network/server level hardware and software, the sooner libraries will purchase the technology. Libraries lack staff and specifically lack trained technology staff. The hardware and software need to be turnkey; the interface, self-explanatory.
Content/Collections:	• Digital materials must be found which meet the needs and interests of those affected by the digital divide. • Materials of greatest interest may need to be created by local community members about their community. Libraries will need to stimulate the development of these materials. • What collections are best for people who don't read?
Organization of Collections or Services:	• Organizing materials of interest to those affected by the digital divide in ways to promote use remains a key challenge. • Existing library software interfaces are too complicated for the audience that needs to be reached – and, indeed, too complicated for many.
Public services:	• Services targeted to groups outside the library will need to be developed, advertised, and delivered to challenging new audiences.
Public training:	• At the heart of the program will be training efforts to acquaint those affected by the digital divide with the Internet, demonstrate its utility, and provide the skills needed so use is second nature. • Small group training will be the emphasis, however some of those affected by the digital divide will only learn with the one-on-one user training libraries currently provide, in a way unique among their community peers. One-on-one training is costly in staff time and undervalued in quantitative evaluations.
Promotion:	• The targeted groups will be new library users, some of whom do not make use of traditional promotional outlets (e.g., any that require reading) with the challenge of explaining what the Internet is and why it matters the first promotional tasks.
Staff:	• Libraries do not have enough staff to meet present demand. New initiatives will require new staff as an incentive or they won't happen.
Staff training:	• Librarians may not have the skills needed to help present library Internet users nor meet increased demand. • Librarians may need training in how to teach or in how to teach groups. • Librarians will need training in how to help new users, many of whom are not traditionally library users.

Table 4.3 One Possible Next Step for Public Library Internet Services (Cont.)	
Infrastructure Element	**Selected Changes Needed**
Finance:	There are few local resources to meet any of the above outlined needs. The incentives will have to come from external funders.
Management:	• Clusters of workstations is an order of magnitude difference from single workstations, and IT management capacity will be needed on staff. • Offering new library services to new users will require flexible new ways of thinking and doing. The library's image may once again change with corresponding changes in their management.
Evaluation:	• Devising simple yet accurate means of identifying those targeted for service and whether they have received useful service, while respecting individual privacy, are key challenges.

Taking the next step and reaching out to those affected by the digital divide is a daunting task, but so was introducing public library Internet services. The key will be learning from the lessons of this initial roll-out, notably the need for more systematic coordination and leveraging of scare funds to meet a much more precise set of diverse prerequisites (such as those sketched in Table 4.3).

Focus on Library Staff Training

One of the weakest information infrastructure element in the libraries visited was staff training. Principal areas of concern include:

- The size and persistence of the problem: The entire profession has had to be re-trained in order to superficially cope with the introduction of the Internet. The pace of technological change means that continuous staff re-training must become the norm.
- Is IT delivery a better substitute: Library educators do not know when or how best to use new information technology-based training techniques because of the newness of these approaches. Educators do not yet know whether these IT techniques will be effective substitutes, supplements or complements to meet the great demand for affordable widely distributed staff continuing education.
- Lack of attention by external funders: With the exception of LSTA, external library funders have not focused as much attention on the staff training needs. A key issue may be that training outcomes are not as tangible as equipment purchases or building improvements.
- Lack of commitment by local funders: Many local funders do not recognize that staff re-skilling is needed, will be ongoing for the foreseeable future, or that trained staff make the otherwise impossible more likely.
- Special problems faced by small and branch libraries: In order to get re-skilled, these librarians need to find a substitute or close down operations because there are no local staff to cover for the time away. Rural librarians' remote location means added time away, travel, and other ancillary costs. No one, at the local institutions or at the external training level, has secured the funds to make regular re-skilling feasible, let alone attractive.

- Market failure among traditional educational institutions: There has not been enough incentive for traditional educators to offer instruction tailored to the needs of the continuing education market, in a pragmatic form and location needed at an attractive price to everyone. Either the market is not there, the educators are not there, or other opportunities are more attractive.

As a result of these and other concerns, a principal barrier to achieving the next steps in the development of public library Internet services is the lack of trained staff in local public libraries.

Aid Small Public Libraries, Urban Branches and Poorest Communities

The weakest link structurally[114] in the diffusion of public library Internet services may be small[115] rural public libraries and the branches of urban library systems. The cause is commonly attributed to a lack of staff and the lack of funds to pay for staff and other library needs. A small rural library manager summarized the consequences of a lack of staff for public library Internet services,

> *You could tell me that you had something that would change the life of everyone in the community. I could believe it too. You could even give it to me free. But you know, the way things are, the best that I could do when someone came in to use it, is point to where it was located and say, "why don't you go over there and see if you can figure it out."*

A pre-condition for the interview with this librarian was that the investigator would agree to check out books and answer the phone as needed!

Several strategies will persist into the next period of Public library Internet service development including:

- Triage: Every year state libraries have the *very* difficult task of deciding whether to continue to provide state aid to libraries struggling to meet minimal state standards. If a public library does not qualify for state aid, it is often not eligible for other external funding programs (including E-rate and Gates Fund). The need to fund expensive Internet services has made funding of the least qualified public libraries problematic. State librarians must ask if they can continue to subsidize marginal libraries when further funding is needed at libraries where the community has found ways to provide local support. All of the state librarians interviewed stressed that this is not an academic exercise; tough decisions in this area have been and will continue to need to be made.
- Aggregate up: The modern history of U.S. public libraries, prompted in part by the early promise of library automation, has been for small libraries to band together into library systems. Library systems have been vital to making Internet services possible in some cases, and allowing these services to thrive in other cases. State libraries supplement system efforts with key resource sharing initiatives beginning with interlibrary loan, document delivery, cooperative cataloging and procurement and, more recently, with the

[114] Structural is used here in the sense of a set of resources and bureaucracy committed to solve a problem. Said differently, the problem is lack of staff in these libraries not the quality of the staff.
[115] For example, a librarian (with or without an MLS) and one or two staff.

successful provision of licensed databases. This approach will continue with more formalized regional, state and multi-state associations becoming increasingly important.

- Circuit riders: State libraries, often using LSTA finds, have designed programs to identify local need for staff expertise and meet the need by various arrangements involving bringing in temporary staff for short periods to design programs, fix problems and train staff, governing boards, and library users. These programs, while limited, have proven essential in many programmatic areas and will continue to not expand.
- Virtual libraries: Walk into any rural post office or bank, peel back the surface, and you may see thoughtful efforts to identify core service needs, streamline policy and procedure, and the use of automated technologies to reduce staff demand and increase service hours.

Public libraries are making similar efforts. One example is discussed next.

Virtual Libraries

One of the most exciting virtual library efforts, already a success after only months of operation, is underway in an urban immigrant setting at the Hialeah [FL] Public Library. The need there was to open branch libraries in long under-served areas given few staff and resources to do so. This strategy capitalizes on library aggregation into systems by moving system resources where they are needed using the Internet. This strategy may allow the reversal of library closings and permit local services closer to those affected by the digital divide.

Hialeah Public Library had an opportunity (space and building overhead covered by the city) to open several small (one room) branches in previously under-served parts of the city. Several sections of the city contained citizens who were not only affected by the digital divide, but who were often physically divided from the rest of the city and the library due to severe highway traffic jams. The branches had to be cheap yet effective to be sustained. Several key decisions mattered, library managers:

- Re-defined the library in terms of what its library users wanted most and what information technology could make possible. Banks did a similar assessment leading to the ATM. Users wanted a space that was clean and safe (it helped that the branches are located in the police stations), access to the Internet, best sellers for adults and kids with quick access to the rest of the city's collection, as many periodicals as possible (particularly to help with homework), help with basic reference with access to expert assistance, and TV for breaking news events.
- Recognized that staff costs, particularly for professional staff, were the major, "show stopping" expense. Professional librarians could not staff the site, or if they did, they could staff the library only on a part time basis. Library users wanted access to the professionals, particularly for the tough reference questions.
- Knew that users wanted the branches to be open as long as possible. Staffing costs remained the greatest obstacle. The key was using technology, simplifying and streamlining process, and maximizing existing staff use. Post offices, faced with a similar situation, came up with the self service stamp and weighing center, plus the already in place interior mailboxes and self serve post office boxes.

- Recognized that technology could be used to substitute for staff, bring the collection and finding aids to the user, and bring remote costly staff to the user.

The solution began with a cluster (12) of networked Internet workstations (allowing for public training) with (4) printers and headphones providing access to the Internet, educational software, and to the library system's catalog. The catalog allows materials to be flagged for same day delivery to the branches (home delivery was being considered, as equipment and driver costs were already committed to run the service to the branches). Also available were licensed databases supplying basic reference sources (like an encyclopedia) and making the periodical collection on par with other libraries in the Miami area. Added to this mix were frequently changed collections of adult and children best sellers, and a basic ready reference collection. A telephone hot line directly linked to the main library's reference desk was included to bolster the reference service (with Internet video under consideration). Tables and chairs, overhead and screen for training, and a TV tuned to CNN rounded out the equipment. The branch was staffed by a paraprofessional with plans for professionals to be present for programming (e.g., story hours).

The outcome: after nine months of operation the first branch is so popular with the public that the city gives the library an entire floor of the building. The Hialeah virtual public library experiment was an exciting place to be, suggesting that information technology might be capable of providing a better alternative solution for the hard-pressed small libraries and urban branches across the country.

Remembering the Poorest Counties and Communities

In addition to small libraries and urban branches, attention should be focused on the poorest counties and communities in the U.S. They are places where:

- The rational plans and regulations made from afar simply don't work;
- The county library budget appropriation disappears so that money can be found to build a prison;
- A library manager's success is measured by the years she has been able to keep the same good-sized staff together almost totally funded by external soft money;
- Demonstrating local support and finding local matching funds "have to be finessed" because "there are no local funds for anything, period;"
- New technology is defined as a new bathroom, a roof that doesn't leak, or a telephone; and
- Health information programs focus on getting people to wear shoes.

It is one thing to design programs that work for most. It is another, humbling task to go back and ensure that the intended benefits of a program have reached those who are most in need, often despite the design, regulations, and procedures.

One of the things the better State library administered LSTA programs do well is to enable the poorest libraries meeting minimal state aid standards to eventually obtain proven information technology. Other external funders need to adopt similar, flexible, special case

approaches to ensure the poorest among us have access to the best information, technology and training available. There are four messages here for all external funders:

- Provide "set-asides" to insure that such localities receive support;
- Maximize the generosity and minimize requirements and procedures;
- Remember that the supporting information infrastructure elements are weak or absent and must be built up in coordination to show achievement; and
- Learn to listen, trust, respect and reward successful community leaders in these areas.

Special attention to the situations of the poorest communities is both warranted and required.

Need for Additional Research

The findings presented in this report suggest that there are numerous topics and research questions deserving of additional attention. To some degree, the research reported in this study is a first effort to assess how externally funded programs (LSTA, E-rate, Gates Fund, and others) have contributed to the public libraries' role in addressing digital divide issues. This research, however, is a "snapshot" of benefits and impacts resulting from these external funds during 2000-2001.

Additional research needs to be conducted on an *ongoing basis* to monitor the impact, benefits, and effectiveness of these external programs. Such assessment can:

- Improve the procedures and processes in use for awarding and allocating funds;
- Determine the degree to which program goals and objectives are, in fact, being accomplished;
- Assist funders better determine what local factors and situations improve or detract from the impact and benefits from the programs; and
- Suggest the need for other funding programs that can meet needs or accomplish objectives not being met by existing programs.

As shown in the study reported here, there is much to learn by conducting such assessments. The basic need, however, is to establish a regular *program* of national assessment for such funding programs.

The study team suggests that additional research into measuring the benefits and impacts from external funding programs is essential. Specific research questions and topics for such research are offered in chapters 3-5. At a very practical level, research is needed about how best to establish and maintain a national clearinghouse of (1) methods and data collection techniques to assess such funding programs and their impacts, and (2) public library and State library data sources that can be publicly available in real time.

Perhaps more importantly, the public library community needs to initiate a public discussion and debate about how best to assess benefits and impacts resulting from external funding programs. This would include agreement on standards and performance indicators for assessing such programs; discussions of how such benefits and impacts contribute to addressing

digital divide issues; and, determination as to what criteria should be used to assess national policy initiatives and funding programs related to public libraries. Much work and research remains to be done in these areas.

Additional Conclusions and Recommendations

Given the wealth of information generated by this study, there are a number of additional conclusions and recommendations that require mention.

- **Sustainability**. While the Gates Foundation must be applauded for its significant and important work in assisting public libraries enter the networked environment and address digital divide issues, who will be the next Gates in 2003 remains unclear. The fact of the matter is that a vast number of public libraries were able to obtain and upgrade information technology that would otherwise not have been available to them during 1998-2001 were it not for this program. In 2003 (or sooner) all that equipment will need to be replaced or upgraded. The federal government may need to fill this gap by developing a program that specifically assists public libraries upgrade and obtain new technologies.
- **Leveraging models**. The site visits identified multiple and innovative ways in which public libraries leveraged these various funding sources. Some library managers went to local telecommunications providers and showed them how a contribution would enhance money received via E-rate; others formed consortia to better share technology; still others combined resources from LSTA, E-rate, and Gates Fund to provide unique and innovative services. Additional research is necessary to describe these models and determine which models work best in different contexts.
- **Understanding situational factors**. Numerous factors combine to shape the overall effectiveness of programs such as LSTA, E-rate, and the Gates Fund. Situational factors occur at the funder level in terms of how the funds are requested, awarded, and regulated; they occur at the State library level, in terms of personnel, commitment/interest in a particular program; at the local library level in terms of organizational structure, information technology infrastructure, and personnel; and at the community level in terms of local community demographics, form of government, interest in and support for the library, etc. Thus, flexibility is a key requirement for these various funding programs to be successful. In addition, more research is needed to better understand what mix of funding programs, State library assistance, local library involvement, and community make-up results in the greatest impact from these funding programs.
- **Individuals DO make a difference**. Repeatedly the study team found that one or two individuals in a library, at a branch, at the State library agency, or from a funding program can make a huge difference in the success of a program. One library manager related how one person at the SLD was able to cut through endless red-tape and solve a procedural matter; another librarian told how a State library consultant came to their library (on short notice) to meet with a telecommunications official that resulted in additional funding; and in a conversation with another library manager, she explained how perseverance with the city manager resulted in better integration of library/city information technology. Having "ombudspersons" to deal with procedures and issues on

a rapid response basis was a key component in the success of various public library programs and services.

- **Aggregating up makes a difference, too**. A networked environment permits, encourages, indeed demands the sharing of resources, expertise, technology, costs and benefits across many localities. There is an inherent advantage in the networked environment to aggregate together into larger functional units for many traditionally local activities, from local libraries to systems to states to regions and beyond. Libraries in this study that had affiliated with larger aggregates such as library systems that offered services delivered via the Internet were clearly better off than libraries that had remained self-contained. New forms of aggregation not bound by geographic location or political division, are also possible but not fully explored to date. In many locations, social, political and financial structures have not adjusted as rapidly as technology permits to the new opportunities possible.

Time does not permit a detailed discussion of these, or other conclusions and recommendations. They do suggest, however, the broad scope of findings, conclusions, and recommendations that resulted from this study.

Increasing Impacts and Benefits

The authors of this study see it as a first step on a longer journey to continue efforts to (1) update and improve the information technology infrastructure in public libraries, (2) better coordinate efforts among the federal government, other funders, state libraries and state government, and local libraries and consortia to maximize the impact and benefit from various external funding programs, and (3) improve public library networked and Internet services to better serve those affected by the digital divide.

A combination of efforts, plans, strategies, resources, and people will be required to make those next steps possible. What is clear, however, is that through a combination of funding programs, innovative leaders, dedicated librarians, and leveraged use of resources, significant gains in public library networked services and services to those affected by the digital divide has occurred in recent years. This momentum must be continued and expanded for public libraries to continue to provide innovative networked services and address the issues of the digital divide.

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APPENDIX A: LSTA STATE PLAN REQUIREMENTS & ASSURANCES

LSTA State Library Plan

The following is a summary of the state plan requirement for State library administrative agencies participating in the Grants to State Library Agencies program administered by IMLS.[116] The State Plan shall:

1. Establish goals and specify priorities for the State consistent with the purposes of the LSTA, which states that a State library administrative agency shall expend at least 96% of the total amount of funds received under LSTA for:
   - Establishing or enhancing electronic linkages among or between libraries;
   - Linking libraries electronically with educational, social or information services;
   - Assisting libraries in accessing information through electronic networks;
   - Encouraging libraries in different areas, and encouraging different types of libraries to establish consortia and share resources; or
   - Paying costs for libraries to acquire or share computer systems and telecommunications technologies; and,
   - Targeting library and information services to persons having difficulty using a library and to underserved urban and rural communities, including children (from birth through age 17) from families with incomes below the poverty line (as defined by the Office of Management and Budget and revised annually in accordance with section 673 (2) of the Community Services Block Grant Act (42 U.S.C. 9902(2)) applicable to a family of the size involved.

2. Describe activities that are consistent with these goals and priorities.

3. Describe the procedures to carry out the activities.

4. Describe the methodology that the State library administrative agency will use to evaluate the success of the activities in meeting the goals and priorities.

5. Describe the Plan for expenditure of 4% allowed for SLA administrative cost.

6. Describe the procedures that will be used to involve libraries and library users throughout the state in policy decisions regarding the implementation of the Plan.

7. Provide assurances satisfactory to the Director that the State agency will make reports, and provide information that the Director may reasonably require to determine the extent to which funds provided under the LSTA have been effective in carrying out the purpose of the LSTA.

LSTA requires that:

[116] The plan requirements and (the below) assurances are based on the authors' correspondence with IMLS.

1. Each State library administrative agency shall independently evaluate, and report to the Director regarding the activities assisted under the LSTA prior to the end of the Five-year Plan.

2. Each library receiving assistance shall submit to the State library administrative agency such information as such State agency may require to meet the evaluation requirement.

3. Each State library administrative agency receiving a grant shall make the State Plan available to the public.

Required Assurances

The State library administrative agency shall provide the following assurances as part of the State Plan:

1. Assurances that the officially designated State library administrative agency has the fiscal and legal authority and capability to administer all aspects of the LSTA;

2. Assurances for establishing the State's policies, priorities, criteria, and procedures necessary to the implementation of all programs under LSTA;

3. Assurances that the State Plan will be submitted to the Director for approval;

4. Assurance that the State library agency spend no more than 4% on administrative cost; and,

5. Assurances that the State will comply with the Federal share and maintenance of effort levels described in Sec. 223 of the LSTA.

APPENDIX B: SLD ANALYSIS METHOD AND DESCRIPTION OF TABLES

Method in Brief

USAC supplied the data to the study team in a Microsoft Access database. Below is the complete description of each table provided by USAC. USAC provided the tables and based upon the study team's requests. Queries and reports were designed and written to generate tables B.1 – B.10 presented above.

The applicant table was linked to the funding request table using the form 471 application number as the common field. The field name is FUND_REQ_ID in the t_APPLICANT_INFORMATION table and 471_APPLICATION_NO in the t_FUNDING_REQUESTS table. An additional table (state_pop_2000) was used to expand the state abbreviations to their full names and also supply the 2000 population values used to calculate the per capita rates. This basic structure was then used for each table with various parameters (BUS_PARTY_CATG, FUND_REQ_YEAR, COMMITMENT_STATUS_CD) used to control and filter the raw data to achieve the desired results.

The study team observed that when a funding request was denied, a null value was supplied for the COMMITTED_AMT variable. This value was changed to zero to facilitate mathematical calculations. Additionally, the ORIGINAL_ANNUAL_COST and ORIGINAL_DISCOUNT variables were found to be null in many cases. After consulting with several USAC employees, it was concluded that if an applicant had never modified a particular funding request amount, those two variables ended up in the supplied tables with null values. An update query was then written to create a new ORIGINAL_ANNUAL_COST variable and update those values to the correct amount. The new ORIGINAL_ANNUAL_COST variable was updated to equal the COMMITTED_AMT if the supplied ORIGINAL_ANNUAL_COST was supplied as null or left the same if it had a supplied value. This ensured that tables that dealt with requested funding by libraries would, in fact, generate the desired results.

The final modification to the supplied data involved the SERVICE_ID variable for the 1999 funding requests. It was observed that there were two different spellings for the service request that dealt with internal connections. The spellings INTERNAL CONNECTIONS and INTERNAL CONNECTNS_S were both combined to form one value, INTERNAL CONNECTIONS.

Detailed Description of the Data Tables

The following represent the table definitions for the data that was used for this analysis. An additional table not show here was generated from the 2000 US Census Bureau and shows the overall population for each state and territory reported in the tables B.1 – B.8.

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Schools & Libraries Division
Prepared for the American Library Association

USAC Universal Service Administrative Company

Table Name: t_APPLICANT_INFORMATION

Field:	Description	Value:
FUND_REQ_STATUS_PIA_CD	Application Review Code	PENDING, APPROVED, DENIED
FUND_REQ_CMMTMNT_STATUS_CD	Application Status Code	INCOMPLETE, COMPLETE, PENDING
APPL_NM	Name of the requesting entity	
FUND_REQ_ID	FRN Cross-reference to 471 Application Number	
NCES_DISTRICT_NBR	Applicant's NCES City Code	
BUS_PARTY_CATG	Type of Applicant	SCHOOL, DISTRICT, LIBRARY, SLC CONSORTIUM
NCES_STATE_NBR	Applicant's NCES State Code	
NCES_BUILDING_NBR	Applicant's NCES Building Code	
SLC_BUS_PARTY_TYPE	Sub-type (eg. Main or branch library)	BUREAU INDIAN AFFAIRS, CATHOLIC DIOCESES, CATHOLIC SCHOOL, CONSORTIUM, LIBRARY BRANCH, MAIN PUBLIC LIBRARY, PRIVATE SCHOOL, PUBLIC DISTRICT, PUBLIC SCHOOL, STATE DOE, STATE
FUND_REQ_YEAR	Funding Year	1998, 1999, 2000
APPL_ZIP5_CD	Applicant's Zip Code	
LOCATED_IN_STATE_CD	Applicant's State	
APPL_CITY_NM	Applicant's City	
APPL_STREET_ADDR1	Applicant's Street Location	
BUS_PARTY_ID	Billed Entity Number, assigned by SLD	

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Table Name: t_FUNDED_ENTITIES

Field:	Description	Value:
BUS_PARTY_PRIM_CITY_NM	Funded Entity City	
FUNDED	Funding Category	Site Specific or Worksheet (Shared)
FUND_REQ_ID	FRN Cross-reference to 471 Application Number	
SHARED_WORKSHEET_CODE	Worksheet Code (Chart Number for shared services)	
BUS_PARTY_ID	Funded Entity Number	This is the number of the entity receiving funds, not necessarily the entity on the application.
LOCATED_IN_STATE_CD	Funded Entity State	
MAILING_ZIP5_CD	Funded Entity Zip	
BUS_PARTY_CATG	Funded Entity Type	
BUS_PARTY_ID_NEAREST_SCHL_DIST	Funded Library - Entity Number of the Nearest School District	
FUND_REQ_YEAR	Funding Year	
BUS_PARTY_PRIM_STREET_ADDR1	Funded Entity Street	
BUS_PARTY_NAME	Funded Entity Name	

E-Rate
Schools & Libraries Division
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USAC Universal Service Administrative Company

Table Name: t_FUNDING_REQUESTS

Field:	Description	Value:
SITE_SPECIFIC_ENTITY	Entity Number for Site Specific services	This field is blank for Shared
471_APPLICATION_NO	471 Application Number	
COMMITTED_AMOUNT	Amount process through Commitment	
ORIGINAL_DISCOUNT	Percent Discount	Approved amount after modification by PIA
ORIGINAL_ANNUAL_COST	Total Program Pre-Discount Amount (E * H)	Approved sum of Monthly / Annual Amount before modification by PIA
APPEALS_IND	Indicates if Applicant Filed an Appeal (Post Funding)	Y or N
SRVC_ORD_APPROVAL_STATUS_CD	Funding Request Status	APPROVED, DENIED, PENDING
APPROVED_DISCOUNT	Percent Discount	Approved amount after modification by PIA
COMMITMENT_STATUS_CD	Application Level Commitment Indicator	COMMITTED - FULL, DENIED, PENDING, UNFUNDED - NO PRIORITY
FUND_REQ_ID	Funding Request Number (FRN)	
SHARED_WORKSHEET_CODE	Worksheet Code (Chart Number for shared services)	This field is blank for Site Specific services.
APPROVED_ANNUAL_COST	Total Program Pre-Discount Amount (E * H)	Approved sum of Monthly / Annual Amount after modification by PIA
REQUESTED_AMT	Original Amount Requested ((Original Annual Cost * Original Discount Amount)/100)	
SERVICE_ID	Category of Service	TELCOMM SERVICES, INTERNET ACCESS, INTERNAL CONNECTIONS, INTERNAL CONNECTNS_S, DEDICATED SERVICES

The state and overall US populations figures were obtained from the US Census Bureau and reflect the population for the year 2000. The information was obtained at <http://www.census.gov/population/www/cen2000/respop.html>.

Resident Population of the 50 States, the District of Columbia, and Puerto Rico: Census 2000

Area	Resident Population (April 1, 2000)
Alabama	4,447,100
Alaska	626,932
Arizona	5,130,632
Arkansas	2,673,400
California	33,871,648
Colorado	4,301,261
Connecticut	3,405,565
Delaware	783,600
District of Columbia	572,059
Florida	15,982,378
Georgia	8,186,453
Hawaii	1,211,537
Idaho	1,293,953
Illinois	12,419,293
Indiana	6,080,485
Iowa	2,926,324
Kansas	2,688,418
Kentucky	4,041,769
Louisiana	4,468,976
Maine	1,274,923
Maryland	5,296,486
Massachusetts	6,349,097
Michigan	9,938,444
Minnesota	4,919,479
Mississippi	2,844,658
Missouri	5,595,211
Montana	902,195
Nebraska	1,711,263
Nevada	1,998,257
New Hampshire	1,235,786
New Jersey	8,414,350
New Mexico	1,819,046
New York	18,976,457
North Carolina	8,049,313
North Dakota	642,200
Ohio	11,353,140
Oklahoma	3,450,654
Oregon	3,421,399
Pennsylvania	12,281,054
Rhode Island	1,048,319
South Carolina	4,012,012

South Dakota	754,844
Tennessee	5,689,283
Texas	20,851,820
Utah	2,233,169
Vermont	608,827
Virginia	7,078,515
Washington	5,894,121
West Virginia	1,808,344
Wisconsin	5,363,675
Wyoming	493,782
Total Resident Population[1]	281,421,906
Puerto Rico	3,808,610
Total Resident Population, including Puerto Rico	285,230,516

[1] Includes the population of the 50 states and the District of Columbia.

NOTE: Consistent with the January 1999 U.S. Supreme Court ruling (Department of Commerce v. House of Representatives, 525 U.S. 316, 119 S. Ct. 765 (1999)), the resident population counts used in the apportionment population counts do not reflect the use of statistical sampling to correct for overcounting or undercounting.

Source: U.S. Department of Commerce, U.S. Census Bureau.

Internet Release date: December 28, 2000

Table B.1 Year 2 E-rate Funds Committed to Libraries.

State	*Number of Requests*	*Committed Amount*	*2000 Population*	*Per Capita*
Alabama	317	$611,550.19	4,447,100	$0.138
Alaska	90	$130,629.52	626,932	$0.208
Arizona	244	$423,394.05	5,130,632	$0.083
Arkansas	127	$92,031.08	2,673,400	$0.034
California	282	$3,232,930.38	33,871,648	$0.095
Colorado	251	$679,988.02	4,301,261	$0.158
Connecticut	130	$477,060.81	3,405,565	$0.140
Delaware	36	$88,832.66	783,600	$0.113
District of Columbia	3	$362,268.90	572,059	$0.633
Florida	408	$3,465,892.71	15,982,378	$0.217
Georgia	256	$6,732,990.62	8,186,453	$0.822
Hawaii	97	$96,944.73	1,211,537	$0.080
Idaho	118	$124,331.42	1,293,953	$0.096
Illinois	823	$2,122,060.75	12,419,293	$0.171
Indiana	395	$855,414.21	6,080,485	$0.141
Iowa	488	$400,876.10	2,926,324	$0.137
Kansas	323	$304,580.55	2,688,418	$0.113
Kentucky	345	$726,323.78	4,041,769	$0.180
Louisiana	226	$1,492,264.16	4,468,976	$0.334
Maine	96	$131,696.39	1,274,923	$0.103
Maryland	138	$2,312,295.70	5,296,486	$0.437
Massachusetts	218	$2,705,206.97	6,349,097	$0.426
Michigan	543	$1,802,025.30	9,938,444	$0.181
Minnesota	116	$536,505.71	4,919,479	$0.109
Mississippi	381	$1,116,400.54	2,844,658	$0.392
Missouri	134	$590,198.16	5,595,211	$0.105
Montana	202	$128,565.59	902,195	$0.143
Nebraska	239	$186,298.29	1,711,263	$0.109
Nevada	58	$103,681.67	1,998,257	$0.052
New Hampshire	104	$67,432.93	1,235,786	$0.055

State	*Number of Requests*	*Committed Amount*	*2000 Population*	*Per Capita*
New Jersey	271	$1,436,719.48	8,414,350	$0.171
New Mexico	46	$43,909.65	1,819,046	$0.024
New York	1491	$12,164,440.43	18,976,457	$0.641
North Carolina	268	$1,662,311.69	8,049,313	$0.207
North Dakota	32	$23,862.58	642,200	$0.037
Northern Mariana Islands	2	$14,308.14	71,912	$0.199
Ohio	286	$3,200,228.30	11,353,140	$0.282
Oklahoma	381	$578,663.89	3,450,654	$0.168
Oregon	210	$563,452.89	3,421,399	$0.165
Pennsylvania	815	$2,088,736.90	12,281,054	$0.170
Puerto Rico	152	$3,206,056.50	3,808,610	$0.842
Rhode Island	54	$135,708.38	1,048,319	$0.129
South Carolina	34	$129,646.44	4,012,012	$0.032
South Dakota	48	$21,997.35	754,844	$0.029
Tennessee	441	$908,681.61	5,689,283	$0.160
Texas	464	$1,890,740.69	20,851,820	$0.091
Utah	46	$155,139.02	2,233,169	$0.069
Vermont	91	$82,797.80	608,827	$0.136
Virgin Islands	3	$0.00	108,612	$0.000
Virginia	271	$1,594,545.92	7,078,515	$0.225
Washington	254	$1,432,691.70	5,894,121	$0.243
West Virginia	209	$493,000.60	1,808,344	$0.273
Wisconsin	315	$927,153.58	5,363,675	$0.173
Wyoming	100	$140,258.08	493,782	$0.284
	Grand Total	$64,995,723.51		

Table B.2 Year 3 E-rate Funds Committed to Libraries.

State	*Number of Requests*	*Committed Amount*	*2000 Population*	*Per Capita*
Alaska	87	$109,029.75	626,932	$0.174
Alabama	242	$640,764.61	4,447,100	$0.144
Arkansas	118	$59,884.40	2,673,400	$0.022
Arizona	254	$405,758.16	5,130,632	$0.079
California	439	$3,028,545.57	33,871,648	$0.089
Colorado	303	$785,067.90	4,301,261	$0.183
Connecticut	101	$305,189.56	3,405,565	$0.090
District of Columbia	5	$57,189.60	572,059	$0.100
Delaware	28	$54,303.28	783,600	$0.069
Florida	444	$2,997,379.03	15,982,378	$0.188
Georgia	156	$5,298,414.90	8,186,453	$0.647
Guam	9	$62,241.66	154,805	$0.402
Hawaii	99	$115,715.87	1,211,537	$0.096
Iowa	579	$261,981.09	2,926,324	$0.090
Idaho	81	$88,459.55	1,293,953	$0.068
Illinois	879	$1,863,074.68	12,419,293	$0.150
Indiana	459	$811,270.98	6,080,485	$0.133
Kansas	323	$352,706.41	2,688,418	$0.131
Kentucky	349	$858,435.33	4,041,769	$0.212
Louisiana	185	$1,297,106.18	4,468,976	$0.290
Massachusetts	112	$2,760,896.99	6,349,097	$0.435
Maryland	130	$1,021,204.57	5,296,486	$0.193
Maine	72	$84,980.62	1,274,923	$0.067
Michigan	536	$1,549,710.25	9,938,444	$0.156
Minnesota	149	$205,165.98	4,919,479	$0.042
Missouri	125	$577,725.27	5,595,211	$0.103
Mississippi	346	$966,248.81	2,844,658	$0.340
Montana	218	$134,300.94	902,195	$0.149
North Carolina	293	$1,774,582.22	8,049,313	$0.220
North Dakota	24	$14,516.53	642,200	$0.023

State	*Number of Requests*	*Committed Amount*	*2000 Population*	*Per Capita*
Nebraska	274	$202,769.95	1,711,263	$0.118
New Hampshire	75	$60,138.56	1,235,786	$0.049
New Jersey	279	$1,044,125.62	8,414,350	$0.124
New Mexico	69	$418,891.02	1,819,046	$0.230
Nevada	65	$64,141.09	1,998,257	$0.032
New York	1382	$15,439,444.32	18,976,457	$0.814
Ohio	180	$1,480,452.98	11,353,140	$0.130
Oklahoma	462	$761,320.97	3,450,654	$0.221
Oregon	247	$479,788.57	3,421,399	$0.140
Pennsylvania	725	$1,552,281.43	12,281,054	$0.126
Puerto Rico	249	$4,459,052.40	3,808,610	$1.171
Rhode Island	36	$71,394.21	1,048,319	$0.068
South Carolina	66	$113,027.64	4,012,012	$0.028
South Dakota	33	$10,568.33	754,844	$0.014
Tennessee	529	$1,217,486.73	5,689,283	$0.214
Texas	706	$5,633,263.09	20,851,820	$0.270
Utah	57	$173,480.69	2,233,169	$0.078
Virginia	270	$1,237,923.17	7,078,515	$0.175
Virgin Islands	4	$79,099.54	108,612	$0.728
Vermont	115	$80,554.13	608,827	$0.132
Washington	499	$1,361,799.96	5,894,121	$0.231
Wisconsin	285	$1,381,418.60	5,363,675	$0.258
West Virginia	259	$167,617.41	1,808,344	$0.093
Wyoming	86	$58,433.54	493,782	$0.118
	Grand Total	$66,090,324.64		

Table B.3 Year 2 E-rate Funding Received and Requested.

State	*Number of Requests*	*Committed Amount*	*Requested Amount*	*Difference*
Alabama	317	$611,550.19	$750,669.88	($139,119.69)
Alaska	90	$130,629.52	$146,444.52	($15,815.00)
Arizona	244	$423,394.05	$619,620.93	($196,226.88)
Arkansas	127	$92,031.08	$132,176.27	($40,145.19)
California	282	$3,232,930.38	$3,886,457.90	($653,527.52)
Colorado	251	$679,988.02	$841,306.15	($161,318.13)
Connecticut	130	$477,060.81	$564,766.56	($87,705.75)
Delaware	36	$88,832.66	$130,509.08	($41,676.42)
District of Columbia	3	$362,268.90	$452,941.83	($90,672.93)
Florida	408	$3,465,892.71	$4,155,091.08	($689,198.37)
Georgia	256	$6,732,990.62	$7,045,197.21	($312,206.59)
Hawaii	97	$96,944.73	$846,815.83	($749,871.10)
Idaho	118	$124,331.42	$136,366.71	($12,035.29)
Illinois	823	$2,122,060.75	$3,439,550.82	($1,317,490.07)
Indiana	395	$855,414.21	$1,537,162.05	($681,747.84)
Iowa	488	$400,876.10	$766,139.35	($365,263.25)
Kansas	323	$304,580.55	$508,680.45	($204,099.90)
Kentucky	345	$726,323.78	$850,826.51	($124,502.73)
Louisiana	226	$1,492,264.16	$1,687,717.86	($195,453.70)
Maine	96	$131,696.39	$144,300.69	($12,604.30)
Maryland	138	$2,312,295.70	$3,031,242.02	($718,946.32)
Massachusetts	218	$2,705,206.97	$3,461,353.12	($756,146.15)
Michigan	543	$1,802,025.30	$3,613,297.58	($1,811,272.28)
Minnesota	116	$536,505.71	$632,451.37	($95,945.66)
Mississippi	381	$1,116,400.54	$1,121,582.25	($5,181.71)
Missouri	134	$590,198.16	$646,168.44	($55,970.28)
Montana	202	$128,565.59	$134,814.84	($6,249.25)
Nebraska	239	$186,298.29	$215,806.03	($29,507.74)
Nevada	58	$103,681.67	$185,012.86	($81,331.19)

State	*Number of Requests*	*Committed Amount*	*Requested Amount*	*Difference*
New Hampshire	104	$67,432.93	$81,211.93	($13,779.00)
New Jersey	271	$1,436,719.48	$1,673,465.13	($236,745.65)
New Mexico	46	$43,909.65	$103,940.48	($60,030.83)
New York	1491	$12,164,440.43	$14,590,327.09	($2,425,886.66)
North Carolina	268	$1,662,311.69	$1,916,190.40	($253,878.71)
North Dakota	32	$23,862.58	$27,082.02	($3,219.44)
Northern Mariana Islands	2	$14,308.14	$15,800.31	($1,492.17)
Ohio	286	$3,200,228.30	$4,822,641.59	($1,622,413.29)
Oklahoma	381	$578,663.89	$800,327.95	($221,664.06)
Oregon	210	$563,452.89	$621,278.06	($57,825.17)
Pennsylvania	815	$2,088,736.90	$3,040,810.08	($952,073.18)
Puerto Rico	152	$3,206,056.50	$3,264,988.95	($58,932.45)
Rhode Island	54	$135,708.38	$144,196.92	($8,488.54)
South Carolina	34	$129,646.44	$82,647.75	$46,998.69
South Dakota	48	$21,997.35	$36,749.19	($14,751.84)
Tennessee	441	$908,681.61	$1,018,629.31	($109,947.70)
Texas	464	$1,890,740.69	$2,203,652.77	($312,912.08)
Utah	46	$155,139.02	$168,786.82	($13,647.80)
Vermont	91	$82,797.80	$112,519.62	($29,721.82)
Virgin Islands	3	$0.00	$1,388.70	($1,388.70)
Virginia	271	$1,594,545.92	$1,774,250.10	($179,704.18)
Washington	254	$1,432,691.70	$1,644,500.92	($211,809.22)
West Virginia	209	$493,000.60	$543,948.38	($50,947.78)
Wisconsin	315	$927,153.58	$1,119,796.63	($192,643.05)
Wyoming	100	$140,258.08	$145,139.57	($4,881.49)
Grand Totals	13472	$64,995,723.51	$81,638,740.88	($16,643,017.37)

Table B.4 Year 3 E-rate Funding Received and Requested.

State	*Number of Requests*	*Committed Amount*	*Requested Amount*	*Difference*
Alabama	242	$640,764.61	$755,371.08	($114,606.47)
Alaska	87	$109,029.75	$123,583.80	($14,554.05)
Arizona	254	$405,758.16	$675,505.71	($269,747.55)
Arkansas	118	$59,884.40	$98,019.21	($38,134.81)
California	439	$3,028,545.57	$5,872,743.75	($2,844,198.18)
Colorado	303	$785,067.90	$941,578.76	($156,510.86)
Connecticut	101	$305,189.56	$433,079.26	($127,889.70)
Delaware	28	$54,303.28	$56,196.89	($1,893.61)
District of Columbia	5	$57,189.60	$297,841.50	($240,651.90)
Florida	444	$2,997,379.03	$5,456,486.79	($2,459,107.76)
Georgia	156	$5,298,414.90	$6,561,662.67	($1,263,247.77)
Guam	9	$62,241.66	$362,579.26	($300,337.60)
Hawaii	99	$115,715.87	$146,533.08	($30,817.21)
Idaho	81	$88,459.55	$110,563.91	($22,104.36)
Illinois	879	$1,863,074.68	$3,114,498.45	($1,251,423.77)
Indiana	459	$811,270.98	$1,130,850.00	($319,579.02)
Iowa	579	$261,981.09	$414,344.79	($152,363.70)
Kansas	323	$352,706.41	$3,122,852.14	($2,770,145.73)
Kentucky	349	$858,435.33	$1,638,361.68	($779,926.35)
Louisiana	185	$1,297,106.18	$1,850,243.58	($553,137.40)
Maine	72	$84,980.62	$124,454.65	($39,474.03)
Maryland	130	$1,021,204.57	$1,723,368.47	($702,163.90)
Massachusetts	112	$2,760,896.99	$3,359,784.73	($598,887.74)
Michigan	536	$1,549,710.25	$2,037,848.16	($488,137.91)
Minnesota	149	$205,165.98	$516,642.72	($311,476.74)
Mississippi	346	$966,248.81	$1,250,505.84	($284,257.03)
Missouri	125	$577,725.27	$628,721.30	($50,996.03)
Montana	218	$134,300.94	$193,038.29	($58,737.35)
Nebraska	274	$202,769.95	$233,261.94	($30,491.99)

State	*Number of Requests*	*Committed Amount*	*Requested Amount*	*Difference*
Nevada	65	$64,141.09	$109,019.09	($44,878.00)
New Hampshire	75	$60,138.56	$71,685.65	($11,547.09)
New Jersey	279	$1,044,125.62	$1,564,855.23	($520,729.61)
New Mexico	69	$418,891.02	$475,725.53	($56,834.51)
New York	1382	$15,439,444.32	$29,209,312.30	($13,769,867.98)
North Carolina	293	$1,774,582.22	$2,047,206.88	($272,624.66)
North Dakota	24	$14,516.53	$39,688.74	($25,172.21)
Ohio	180	$1,480,452.98	$5,487,723.30	($4,007,270.32)
Oklahoma	462	$761,320.97	$909,938.92	($148,617.95)
Oregon	247	$479,788.57	$1,135,823.31	($656,034.74)
Pennsylvania	725	$1,552,281.43	$3,171,383.48	($1,619,102.05)
Puerto Rico	249	$4,459,052.40	$5,036,502.44	($577,450.04)
Rhode Island	36	$71,394.21	$115,982.68	($44,588.47)
South Carolina	66	$113,027.64	$141,617.74	($28,590.10)
South Dakota	33	$10,568.33	$26,054.40	($15,486.07)
Tennessee	529	$1,217,486.73	$1,938,264.86	($720,778.13)
Texas	706	$5,633,263.09	$7,157,828.99	($1,524,565.90)
Utah	57	$173,480.69	$212,536.18	($39,055.49)
Vermont	115	$80,554.13	$118,468.57	($37,914.44)
Virgin Islands	4	$79,099.54	$102,119.45	($23,019.91)
Virginia	270	$1,237,923.17	$1,521,649.18	($283,726.01)
Washington	499	$1,361,799.96	$3,087,041.00	($1,725,241.04)
West Virginia	259	$167,617.41	$188,413.60	($20,796.19)
Wisconsin	285	$1,381,418.60	$1,694,524.47	($313,105.87)
Wyoming	86	$58,433.54	$61,269.23	($2,835.69)
Grand Totals	14097	$66,090,324.64	$108,855,157.62	($42,764,832.98)

Table B.5 Year 2 E-rate Denied Requests.

State	*Number of Denials*	*Denied Amount*	*2000 Population*	*Per Capita*
Alabama	47	$106,909.08	4,447,100	$0.024
Alaska	7	$8,269.52	626,932	$0.013
Arizona	31	$93,336.40	5,130,632	$0.018
Arkansas	15	$34,822.59	2,673,400	$0.013
California	41	$406,833.30	33,871,648	$0.012
Colorado	15	$137,152.03	4,301,261	$0.032
Connecticut	21	$53,402.46	3,405,565	$0.016
District of Columbia	1	$90,672.92	572,059	$0.159
Florida	35	$485,239.08	15,982,378	$0.030
Georgia	14	$97,654.77	8,186,453	$0.012
Idaho	19	$8,479.76	1,293,953	$0.007
Illinois	122	$1,268,602.03	12,419,293	$0.102
Indiana	50	$134,173.73	6,080,485	$0.022
Iowa	90	$334,377.07	2,926,324	$0.114
Kansas	49	$187,756.90	2,688,418	$0.070
Kentucky	29	$51,020.52	4,041,769	$0.013
Louisiana	25	$145,898.99	4,468,976	$0.033
Maine	13	$10,057.00	1,274,923	$0.008
Maryland	8	$595,871.28	5,296,486	$0.113
Massachusetts	26	$723,369.14	6,349,097	$0.114
Michigan	72	$1,737,089.93	9,938,444	$0.175
Minnesota	6	$10,926.99	4,919,479	$0.002
Mississippi	3	$3,731.88	2,844,658	$0.001
Missouri	20	$43,916.62	5,595,211	$0.008
Montana	7	$8,854.05	902,195	$0.010
Nebraska	43	$21,666.94	1,711,263	$0.013
Nevada	2	$81,144.36	1,998,257	$0.041

State	*Number of Denials*	*Denied Amount*	*2000 Population*	*Per Capita*
New Hampshire	8	$10,254.81	1,235,786	$0.008
New Jersey	49	$173,851.34	8,414,350	$0.021
New Mexico	11	$58,171.80	1,819,046	$0.032
New York	338	$1,569,517.58	18,976,457	$0.083
North Carolina	19	$133,067.66	8,049,313	$0.017
Ohio	59	$1,420,785.08	11,353,140	$0.125
Oklahoma	19	$162,134.23	3,450,654	$0.047
Oregon	29	$42,775.91	3,421,399	$0.013
Pennsylvania	76	$760,774.45	12,281,054	$0.062
Puerto Rico	38	$2,223.00	3,808,610	$0.001
South Carolina	8	$17,615.40	4,012,012	$0.004
South Dakota	9	$14,120.18	754,844	$0.019
Tennessee	49	$50,547.54	5,689,283	$0.009
Texas	64	$96,800.76	20,851,820	$0.005
Utah	6	$9,873.52	2,233,169	$0.004
Vermont	11	$30,593.14	608,827	$0.050
Virgin Islands	3	$1,388.70	108,612	$0.013
Virginia	25	$100,037.38	7,078,515	$0.014
Washington	20	$167,899.06	5,894,121	$0.028
West Virginia	1	$1,440.00	1,808,344	$0.001
Wisconsin	39	$51,189.54	5,363,675	$0.010
Grand Totals	1692	$11,756,290.43		

Table B.6 Year 3 E-rate Denied Requests.

State	*Number of Denials*	*Denied Amount*	*2000 Population*	*Per Capita*
Alabama	18	$71,656.44	4,447,100	$0.016
Alaska	1	$4,701.12	626,932	$0.007
Arizona	63	$157,649.85	5,130,632	$0.031
California	58	$2,186,476.97	33,871,648	$0.065
Colorado	36	$127,038.36	4,301,261	$0.030
Connecticut	11	$93,576.52	3,405,565	$0.027
District of Columbia	2	$82,626.55	572,059	$0.144
Florida	132	$2,375,795.32	15,982,378	$0.149
Georgia	33	$1,099,515.32	8,186,453	$0.134
Guam	5	$300,337.60	154,805	$1.940
Idaho	10	$10,623.98	1,293,953	$0.008
Illinois	86	$704,476.42	12,419,293	$0.057
Indiana	91	$259,738.35	6,080,485	$0.043
Iowa	66	$137,800.61	2,926,324	$0.047
Kansas	59	$2,758,376.70	2,688,418	$1.026
Kentucky	55	$677,466.16	4,041,769	$0.168
Louisiana	58	$500,702.61	4,468,976	$0.112
Maine	17	$36,321.63	1,274,923	$0.028
Maryland	15	$655,725.36	5,296,486	$0.124
Massachusetts	28	$514,818.55	6,349,097	$0.081
Michigan	78	$415,946.08	9,938,444	$0.042
Minnesota	34	$299,965.12	4,919,479	$0.061
Mississippi	17	$260,137.38	2,844,658	$0.091
Missouri	9	$29,018.21	5,595,211	$0.005
Montana	23	$43,954.28	902,195	$0.049
Nebraska	37	$24,961.46	1,711,263	$0.015
Nevada	21	$42,333.77	1,998,257	$0.021

State	*Number of Denials*	*Denied Amount*	*2000 Population*	*Per Capita*
New Hampshire	7	$5,560.97	1,235,786	$0.004
New Jersey	42	$309,336.39	8,414,350	$0.037
New Mexico	4	$21,500.54	1,819,046	$0.012
New York	205	$5,755,333.71	18,976,457	$0.303
North Carolina	15	$167,812.19	8,049,313	$0.021
North Dakota	2	$23,261.85	642,200	$0.036
Ohio	16	$3,847,753.35	11,353,140	$0.339
Oklahoma	44	$131,895.79	3,450,654	$0.038
Oregon	49	$647,548.68	3,421,399	$0.189
Pennsylvania	80	$1,447,900.08	12,281,054	$0.118
Puerto Rico	9	$138,533.30	3,808,610	$0.036
Rhode Island	7	$37,601.88	1,048,319	$0.036
South Carolina	6	$27,441.92	4,012,012	$0.007
South Dakota	4	$13,948.04	754,844	$0.018
Tennessee	61	$465,183.02	5,689,283	$0.082
Texas	84	$988,052.18	20,851,820	$0.047
Utah	6	$26,010.18	2,233,169	$0.012
Vermont	22	$27,210.48	608,827	$0.045
Virgin Islands	1	$7,200.00	108,612	$0.066
Virginia	49	$269,172.58	7,078,515	$0.038
Washington	135	$1,545,240.64	5,894,121	$0.262
West Virginia	5	$16,627.27	1,808,344	$0.009
Wisconsin	52	$148,460.63	5,363,675	$0.028
Wyoming	4	$2,144.78	493,782	$0.004
Grand Totals	1972	$29,942,471.16		

Table B.7 Year 2 E-rate Types of Services Requested

State	*Type of Service Requested*	*Number of Request*	*Committed Amount*
Alabama			
	DEDICATED SERVICES	21	$31,817.08
	INTERNAL CONNECTIONS	37	$68,052.79
	INTERNET ACCESS	74	$155,531.40
	TELCOMM SERVICES	138	$356,148.92
	State Total	270	$611,550.19
Alaska			
	DEDICATED SERVICES	3	$2,770.80
	INTERNAL CONNECTIONS	4	$11,278.30
	INTERNET ACCESS	25	$41,052.41
	TELCOMM SERVICES	51	$75,528.01
	State Total	83	$130,629.52
Arizona			
	DEDICATED SERVICES	34	$50,904.46
	INTERNAL CONNECTIONS	47	$52,235.79
	INTERNET ACCESS	14	$46,172.29
	TELCOMM SERVICES	118	$274,081.51
	State Total	213	$423,394.05
Arkansas			
	DEDICATED SERVICES	28	$17,434.36
	INTERNAL CONNECTIONS	2	$5,472.00
	INTERNET ACCESS	6	$5,677.20
	TELCOMM SERVICES	76	$63,447.52
	State Total	112	$92,031.08
California			
	DEDICATED SERVICES	35	$108,178.91
	INTERNAL CONNECTIONS	51	$824,568.41
	INTERNET ACCESS	32	$335,795.34
	TELCOMM SERVICES	123	$1,964,387.72
	State Total	241	$3,232,930.38
Colorado			
	DEDICATED SERVICES	10	$11,842.75
	INTERNAL CONNECTIONS	7	$30,379.86
	INTERNET ACCESS	40	$81,449.02
	TELCOMM SERVICES	179	$556,316.39
	State Total	236	$679,988.02

State	Type of Service Requested	Number of Request	Committed Amount
Connecticut			
	DEDICATED SERVICES	52	$71,459.16
	INTERNAL CONNECTIONS	4	$142,460.48
	INTERNET ACCESS	14	$66,633.36
	TELCOMM SERVICES	39	$196,507.81
	State Total	109	$477,060.81
Delaware			
	DEDICATED SERVICES	1	$553.06
	TELCOMM SERVICES	35	$88,279.60
	State Total	36	$88,832.66
District of Columbia			
	INTERNET ACCESS	1	$53,448.66
	TELCOMM SERVICES	1	$308,820.24
	State Total	2	$362,268.90
Florida			
	DEDICATED SERVICES	63	$164,080.83
	INTERNAL CONNECTIONS	55	$885,421.76
	INTERNET ACCESS	37	$307,810.92
	TELCOMM SERVICES	218	$2,108,579.20
	State Total	373	$3,465,892.71
Georgia			
	DEDICATED SERVICES	42	$72,879.40
	INTERNAL CONNECTIONS	37	$399,199.46
	INTERNET ACCESS	27	$1,345,707.78
	TELCOMM SERVICES	136	$4,915,203.98
	State Total	242	$6,732,990.62
Hawaii			
	DEDICATED SERVICES	73	$85,192.29
	TELCOMM SERVICES	24	$11,752.44
	State Total	97	$96,944.73
Idaho			
	DEDICATED SERVICES	20	$16,277.71
	INTERNAL CONNECTIONS	3	$14,998.00
	INTERNET ACCESS	20	$19,694.61
	TELCOMM SERVICES	56	$73,361.10
	State Total	99	$124,331.42

State	Type of Service Requested	Number of Request	Committed Amount
Illinois			
	DEDICATED SERVICES	172	$387,706.01
	INTERNAL CONNECTIONS	26	$567,147.23
	INTERNET ACCESS	59	$138,724.05
	TELCOMM SERVICES	444	$1,028,483.46
	State Total	701	$2,122,060.75
Indiana			
	DEDICATED SERVICES	72	$71,102.72
	INTERNAL CONNECTIONS	38	$84,609.84
	INTERNET ACCESS	31	$65,822.47
	TELCOMM SERVICES	204	$633,879.18
	State Total	345	$855,414.21
Iowa			
	DEDICATED SERVICES	34	$29,351.01
	INTERNAL CONNECTIONS	12	$140,571.29
	INTERNET ACCESS	80	$57,983.65
	TELCOMM SERVICES	272	$172,922.15
	State Total	398	$400,828.10
Kansas			
	DEDICATED SERVICES	46	$41,378.98
	INTERNAL CONNECTIONS	14	$35,489.11
	INTERNET ACCESS	62	$68,496.36
	TELCOMM SERVICES	152	$159,216.10
	State Total	274	$304,580.55
Kentucky			
	DEDICATED SERVICES	30	$44,670.08
	INTERNAL CONNECTIONS	17	$38,412.03
	INTERNET ACCESS	78	$162,968.14
	TELCOMM SERVICES	191	$480,273.53
	State Total	316	$726,323.78
Louisiana			
	DEDICATED SERVICES	52	$69,702.80
	INTERNAL CONNECTIONS	51	$46,098.21
	INTERNET ACCESS	11	$1,107,200.00
	TELCOMM SERVICES	87	$269,263.15
	State Total	201	$1,492,264.16

State	Type of Service Requested	Number of Request	Committed Amount
Maine			
	DEDICATED SERVICES	1	$6,486.00
	INTERNAL CONNECTIONS	22	$65,995.94
	TELCOMM SERVICES	60	$59,214.45
	State Total	83	$131,696.39
Maryland			
	DEDICATED SERVICES	2	$45,287.14
	INTERNAL CONNECTIONS	19	$1,432,976.55
	INTERNET ACCESS	17	$152,607.04
	TELCOMM SERVICES	92	$681,424.97
	State Total	130	$2,312,295.70
Massachusetts			
	DEDICATED SERVICES	19	$36,322.53
	INTERNAL CONNECTIONS	51	$1,234,560.30
	INTERNET ACCESS	19	$287,026.30
	TELCOMM SERVICES	103	$1,147,297.84
	State Total	192	$2,705,206.97
Michigan			
	DEDICATED SERVICES	67	$222,806.71
	INTERNAL CONNECTIONS	43	$469,790.72
	INTERNET ACCESS	65	$393,384.08
	TELCOMM SERVICES	296	$716,043.79
	State Total	471	$1,802,025.30
Minnesota			
	DEDICATED SERVICES	5	$2,452.80
	INTERNAL CONNECTIONS	2	$24,891.26
	INTERNET ACCESS	15	$98,976.76
	TELCOMM SERVICES	88	$410,184.89
	State Total	110	$536,505.71
Mississippi			
	DEDICATED SERVICES	10	$80,847.81
	INTERNAL CONNECTIONS	20	$246,902.69
	INTERNET ACCESS	118	$376,422.27
	TELCOMM SERVICES	230	$412,227.77
	State Total	378	$1,116,400.54

State	*Type of Service Requested*	*Number of Request*	*Committed Amount*
Missouri			
	DEDICATED SERVICES	13	$7,195.49
	INTERNAL CONNECTIONS	9	$40,812.36
	INTERNET ACCESS	6	$56,840.78
	TELCOMM SERVICES	86	$485,349.53
	State Total	114	$590,198.16
Montana			
	DEDICATED SERVICES	16	$10,899.04
	INTERNAL CONNECTIONS	5	$2,663.72
	INTERNET ACCESS	64	$50,804.91
	TELCOMM SERVICES	110	$64,197.92
	State Total	195	$128,565.59
Nebraska			
	DEDICATED SERVICES	89	$77,992.77
	INTERNAL CONNECTIONS	5	$13,881.48
	INTERNET ACCESS	31	$16,655.13
	TELCOMM SERVICES	71	$77,768.91
	State Total	196	$186,298.29
Nevada			
	DEDICATED SERVICES	2	$3,332.96
	INTERNAL CONNECTIONS	1	$1,022.40
	INTERNET ACCESS	6	$3,947.68
	TELCOMM SERVICES	47	$95,378.63
	State Total	56	$103,681.67
New Hampshire			
	DEDICATED SERVICES	30	$18,500.79
	INTERNAL CONNECTIONS	3	$8,666.40
	INTERNET ACCESS	15	$10,398.82
	TELCOMM SERVICES	48	$29,866.92
	State Total	96	$67,432.93
New Jersey			
	DEDICATED SERVICES	35	$252,157.99
	INTERNAL CONNECTIONS	46	$513,693.45
	INTERNET ACCESS	23	$177,312.58
	TELCOMM SERVICES	118	$493,555.46
	State Total	222	$1,436,719.48

State	*Type of Service Requested*	*Number of Request*	*Committed Amount*
New Mexico			
	DEDICATED SERVICES	4	$7,724.40
	INTERNAL CONNECTIONS	2	$4,996.92
	INTERNET ACCESS	10	$6,512.09
	TELCOMM SERVICES	19	$24,676.24
	State Total	35	$43,909.65
New York			
	DEDICATED SERVICES	113	$310,981.56
	INTERNAL CONNECTIONS	210	$6,393,865.34
	INTERNET ACCESS	92	$632,551.41
	TELCOMM SERVICES	738	$4,827,042.12
	State Total	1153	$12,164,440.43
North Carolina			
	DEDICATED SERVICES	11	$30,783.85
	INTERNAL CONNECTIONS	18	$105,610.52
	INTERNET ACCESS	41	$728,983.09
	TELCOMM SERVICES	179	$796,934.23
	State Total	249	$1,662,311.69
North Dakota			
	DEDICATED SERVICES	11	$7,701.67
	INTERNAL CONNECTIONS	1	$1,575.00
	INTERNET ACCESS	3	$1,794.66
	TELCOMM SERVICES	17	$12,791.25
	State Total	32	$23,862.58
Northern Mariana Islands			
	INTERNET ACCESS	1	$9,757.44
	TELCOMM SERVICES	1	$4,550.70
	State Total	2	$14,308.14
Ohio			
	DEDICATED SERVICES	37	$89,193.99
	INTERNAL CONNECTIONS	12	$52,741.44
	INTERNET ACCESS	11	$510,245.53
	TELCOMM SERVICES	167	$2,548,047.34
	State Total	227	$3,200,228.30
Oklahoma			
	DEDICATED SERVICES	52	$90,858.26
	INTERNAL CONNECTIONS	30	$33,355.33
	INTERNET ACCESS	69	$120,171.60
	TELCOMM SERVICES	211	$334,268.70
	State Total	362	$578,663.89

State	*Type of Service Requested*	*Number of Request*	*Committed Amount*
Oregon			
	DEDICATED SERVICES	44	$27,660.33
	INTERNAL CONNECTIONS	49	$323,616.97
	INTERNET ACCESS	22	$30,692.44
	TELCOMM SERVICES	66	$181,483.15
	State Total	181	$563,452.89
Pennsylvania			
	DEDICATED SERVICES	195	$160,968.26
	INTERNAL CONNECTIONS	79	$826,352.75
	INTERNET ACCESS	85	$205,940.24
	TELCOMM SERVICES	380	$895,475.65
	State Total	739	$2,088,736.90
Puerto Rico			
	DEDICATED SERVICES	4	$203,580.00
	INTERNAL CONNECTIONS	38	$1,208,542.50
	INTERNET ACCESS	34	$1,730,430.00
	TELCOMM SERVICES	38	$63,504.00
	State Total	114	$3,206,056.50
Rhode Island			
	DEDICATED SERVICES	14	$46,694.54
	INTERNAL CONNECTIONS	7	$12,557.70
	INTERNET ACCESS	1	$4,698.00
	TELCOMM SERVICES	32	$71,758.14
	State Total	54	$135,708.38
South Carolina			
	INTERNAL CONNECTIONS	1	$1,584.00
	TELCOMM SERVICES	25	$128,062.44
	State Total	26	$129,646.44
South Dakota			
	DEDICATED SERVICES	11	$9,721.12
	INTERNAL CONNECTIONS	1	$148.50
	INTERNET ACCESS	13	$5,474.42
	TELCOMM SERVICES	14	$6,653.31
	State Total	39	$21,997.35

State	*Type of Service Requested*	*Number of Request*	*Committed Amount*
Tennessee			
	DEDICATED SERVICES	18	$33,045.79
	INTERNAL CONNECTIONS	15	$295,643.85
	INTERNET ACCESS	85	$95,354.24
	TELCOMM SERVICES	274	$484,637.73
	State Total	392	$908,681.61
Texas			
	DEDICATED SERVICES	117	$313,695.33
	INTERNAL CONNECTIONS	40	$877,299.75
	INTERNET ACCESS	58	$81,556.65
	TELCOMM SERVICES	185	$618,188.96
	State Total	400	$1,890,740.69
Utah			
	DEDICATED SERVICES	5	$3,122.58
	INTERNET ACCESS	11	$40,120.76
	TELCOMM SERVICES	24	$111,895.68
	State Total	40	$155,139.02
Vermont			
	DEDICATED SERVICES	22	$19,275.34
	INTERNAL CONNECTIONS	8	$19,675.71
	INTERNET ACCESS	4	$4,512.75
	TELCOMM SERVICES	46	$39,334.00
	State Total	80	$82,797.80
Virginia			
	DEDICATED SERVICES	42	$108,860.90
	INTERNAL CONNECTIONS	46	$533,744.63
	INTERNET ACCESS	26	$209,454.91
	TELCOMM SERVICES	132	$742,485.48
	State Total	246	$1,594,545.92
Washington			
	DEDICATED SERVICES	40	$137,929.07
	INTERNAL CONNECTIONS	11	$166,989.33
	INTERNET ACCESS	31	$148,366.44
	TELCOMM SERVICES	152	$979,406.86
	State Total	234	$1,432,691.70
West Virginia			
	INTERNET ACCESS	3	$278,136.80
	TELCOMM SERVICES	205	$214,863.80
	State Total	208	$493,000.60

State	*Type of Service Requested*	*Number of Request*	*Committed Amount*
Wisconsin			
	DEDICATED SERVICES	23	$16,087.14
	INTERNAL CONNECTIONS	39	$221,083.62
	INTERNET ACCESS	37	$62,598.98
	TELCOMM SERVICES	177	$627,383.84
	State Total	276	$927,153.58
Wyoming			
	DEDICATED SERVICES	2	$554.40
	INTERNAL CONNECTIONS	1	$4,116.80
	INTERNET ACCESS	27	$59,234.04
	TELCOMM SERVICES	70	$76,352.84
	State Total	100	$140,258.08

Table B.8 Year 3 E-rate Types of Services Requested and Funded..

State	*Type of Service Requested*	*Number of Request*	*Committed Amount*
Alabama			
	INTERNAL CONNECTIONS	4	$192,207.76
	INTERNET ACCESS	56	$64,035.24
	TELCOMM SERVICES	164	$384,521.61
	State Total	224	$640,764.61
Alaska			
	INTERNAL CONNECTIONS	6	$12,556.00
	INTERNET ACCESS	29	$44,159.03
	TELCOMM SERVICES	51	$52,314.72
	State Total	86	$109,029.75
Arizona			
	INTERNAL CONNECTIONS	18	$9,771.32
	INTERNET ACCESS	15	$72,448.19
	TELCOMM SERVICES	158	$323,538.65
	State Total	191	$405,758.16
Arkansas			
	INTERNAL CONNECTIONS	4	$0.00
	INTERNET ACCESS	21	$9,725.11
	TELCOMM SERVICES	93	$50,159.29
	State Total	118	$59,884.40
California			
	INTERNAL CONNECTIONS	6	$149,423.43
	INTERNET ACCESS	49	$431,433.17
	TELCOMM SERVICES	326	$2,447,688.97
	State Total	381	$3,028,545.57
Colorado			
	INTERNAL CONNECTIONS	1	$1,094.04
	INTERNET ACCESS	62	$153,211.95
	TELCOMM SERVICES	204	$630,761.91
	State Total	267	$785,067.90
Connecticut			
	INTERNAL CONNECTIONS	2	$16,626.98
	INTERNET ACCESS	13	$133,418.14
	TELCOMM SERVICES	75	$155,144.44
	State Total	90	$305,189.56
Delaware			
	TELCOMM SERVICES	28	$54,303.28
	State Total	28	$54,303.28

State	Type of Service Requested	Number of Request	Committed Amount
District of Columbia			
	INTERNET ACCESS	2	$57,189.60
	TELCOMM SERVICES	1	$0.00
	State Total	3	$57,189.60
Florida			
	INTERNET ACCESS	37	$330,924.13
	TELCOMM SERVICES	275	$2,666,454.90
	State Total	312	$2,997,379.03
Georgia			
	INTERNAL CONNECTIONS	5	$1,339.84
	INTERNET ACCESS	6	$4,850,631.74
	TELCOMM SERVICES	112	$446,443.32
	State Total	123	$5,298,414.90
Guam			
	INTERNET ACCESS	1	$43,056.00
	TELCOMM SERVICES	3	$19,185.66
	State Total	4	$62,241.66
Hawaii			
	TELCOMM SERVICES	99	$115,715.87
	State Total	99	$115,715.87
Idaho			
	INTERNET ACCESS	20	$27,287.36
	TELCOMM SERVICES	51	$61,172.19
	State Total	71	$88,459.55
Illinois			
	INTERNAL CONNECTIONS	11	$130,881.53
	INTERNET ACCESS	121	$379,751.76
	TELCOMM SERVICES	661	$1,352,441.39
	State Total	793	$1,863,074.68
Indiana			
	INTERNET ACCESS	41	$165,727.55
	TELCOMM SERVICES	327	$645,543.43
	State Total	368	$811,270.98
Iowa			
	INTERNET ACCESS	157	$92,383.59
	TELCOMM SERVICES	356	$169,597.50
	State Total	513	$261,981.09
Kansas			
	INTERNET ACCESS	85	$112,963.55
	TELCOMM SERVICES	179	$239,742.86
	State Total	264	$352,706.41

State	Type of Service Requested	Number of Request	Committed Amount
Kentucky			
	INTERNAL CONNECTIONS	5	$8,385.55
	INTERNET ACCESS	95	$264,844.89
	TELCOMM SERVICES	194	$585,204.89
	State Total	294	$858,435.33
Louisiana			
	INTERNAL CONNECTIONS	8	$1,020.34
	INTERNET ACCESS	6	$1,037,537.33
	TELCOMM SERVICES	113	$258,548.51
	State Total	127	$1,297,106.18
Maine			
	INTERNAL CONNECTIONS	1	$0.00
	TELCOMM SERVICES	54	$84,980.62
	State Total	55	$84,980.62
Maryland			
	INTERNET ACCESS	25	$393,655.98
	TELCOMM SERVICES	90	$627,548.59
	State Total	115	$1,021,204.57
Massachusetts			
	INTERNAL CONNECTIONS	7	$1,912,731.98
	INTERNET ACCESS	9	$166,388.15
	TELCOMM SERVICES	68	$681,776.86
	State Total	84	$2,760,896.99
Michigan			
	INTERNAL CONNECTIONS	2	$1,411.20
	INTERNET ACCESS	103	$798,082.40
	TELCOMM SERVICES	353	$750,216.65
	State Total	458	$1,549,710.25

State	Type of Service Requested	Number of Request	Committed Amount
Minnesota			
	INTERNET ACCESS	4	$41,969.23
	TELCOMM SERVICES	111	$163,196.75
	State Total	115	$205,165.98
Mississippi			
	INTERNAL CONNECTIONS	38	$96,677.08
	INTERNET ACCESS	22	$176,163.48
	TELCOMM SERVICES	269	$693,408.25
	State Total	329	$966,248.81
Missouri			
	INTERNET ACCESS	5	$35,854.00
	TELCOMM SERVICES	111	$541,871.27
	State Total	116	$577,725.27
Montana			
	INTERNAL CONNECTIONS	3	$0.00
	INTERNET ACCESS	67	$51,728.76
	TELCOMM SERVICES	125	$82,572.18
	State Total	195	$134,300.94
Nebraska			
	INTERNET ACCESS	70	$58,328.11
	TELCOMM SERVICES	167	$144,441.84
	State Total	237	$202,769.95
Nevada			
	INTERNET ACCESS	6	$1,557.16
	TELCOMM SERVICES	38	$62,583.93
	State Total	44	$64,141.09
New Hampshire			
	INTERNET ACCESS	20	$21,906.40
	TELCOMM SERVICES	48	$38,232.16
	State Total	68	$60,138.56
New Jersey			
	INTERNAL CONNECTIONS	38	$355,081.89
	INTERNET ACCESS	32	$261,115.37
	TELCOMM SERVICES	167	$427,928.36
	State Total	237	$1,044,125.62

State	Type of Service Requested	Number of Request	Committed Amount
New Mexico			
	INTERNAL CONNECTIONS	5	$289,903.70
	INTERNET ACCESS	28	$65,820.49
	TELCOMM SERVICES	32	$63,166.83
	State Total	65	$418,891.02
New York			
	INTERNAL CONNECTIONS	27	$2,478,524.86
	INTERNET ACCESS	126	$2,364,912.39
	TELCOMM SERVICES	1024	$10,596,007.07
	State Total	1177	$15,439,444.32
North Carolina			
	INTERNAL CONNECTIONS	1	$9,958.90
	INTERNET ACCESS	47	$781,331.19
	TELCOMM SERVICES	230	$983,292.13
	State Total	278	$1,774,582.22
North Dakota			
	INTERNET ACCESS	6	$3,037.55
	TELCOMM SERVICES	16	$11,478.98
	State Total	22	$14,516.53
Ohio			
	INTERNET ACCESS	12	$46,247.41
	TELCOMM SERVICES	152	$1,434,205.57
	State Total	164	$1,480,452.98
Oklahoma			
	INTERNAL CONNECTIONS	10	$22,740.86
	INTERNET ACCESS	163	$378,755.73
	TELCOMM SERVICES	245	$359,824.38
	State Total	418	$761,320.97
Oregon			
	INTERNET ACCESS	30	$170,306.77
	TELCOMM SERVICES	168	$309,481.80
	State Total	198	$479,788.57
Pennsylvania			
	INTERNAL CONNECTIONS	4	$18,915.43
	INTERNET ACCESS	148	$415,893.75
	TELCOMM SERVICES	493	$1,117,472.25
	State Total	645	$1,552,281.43

State	Type of Service Requested	Number of Request	Committed Amount
Puerto Rico			
	INTERNAL CONNECTIONS	71	$1,476,839.80
	INTERNET ACCESS	72	$2,819,520.00
	TELCOMM SERVICES	97	$162,692.60
	State Total	240	$4,459,052.40
Rhode Island			
	INTERNET ACCESS	1	$12,649.20
	TELCOMM SERVICES	28	$58,745.01
	State Total	29	$71,394.21
South Carolina			
	INTERNET ACCESS	1	$229.54
	TELCOMM SERVICES	59	$112,798.10
	State Total	60	$113,027.64
South Dakota			
	INTERNET ACCESS	11	$2,464.11
	TELCOMM SERVICES	18	$8,104.22
	State Total	29	$10,568.33
Tennessee			
	INTERNET ACCESS	154	$645,131.37
	TELCOMM SERVICES	314	$572,355.36
	State Total	468	$1,217,486.73
Texas			
	INTERNAL CONNECTIONS	35	$4,072,545.43
	INTERNET ACCESS	173	$520,745.15
	TELCOMM SERVICES	414	$1,039,972.51
	State Total	622	$5,633,263.09
Utah			
	INTERNET ACCESS	9	$54,935.30
	TELCOMM SERVICES	42	$118,545.39
	State Total	51	$173,480.69
Vermont			
	INTERNAL CONNECTIONS	2	$0.00
	INTERNET ACCESS	13	$14,574.72
	TELCOMM SERVICES	78	$65,979.41
	State Total	93	$80,554.13

State	Type of Service Requested	Number of Request	Committed Amount
Virgin Islands			
	INTERNET ACCESS	1	$60,127.09
	TELCOMM SERVICES	2	$18,972.45
	State Total	3	$79,099.54
Virginia			
	INTERNAL CONNECTIONS	1	$4,438.01
	INTERNET ACCESS	44	$262,733.80
	TELCOMM SERVICES	176	$970,751.36
	State Total	221	$1,237,923.17
Washington			
	INTERNET ACCESS	36	$121,843.18
	TELCOMM SERVICES	328	$1,239,956.78
	State Total	364	$1,361,799.96
West Virginia			
	TELCOMM SERVICES	254	$167,617.41
	State Total	254	$167,617.41
Wisconsin			
	INTERNAL CONNECTIONS	8	$613,947.68
	INTERNET ACCESS	25	$115,971.62
	TELCOMM SERVICES	200	$651,499.30
	State Total	233	$1,381,418.60
Wyoming			
	INTERNET ACCESS	6	$1,433.63
	TELCOMM SERVICES	76	$56,999.91
	State Total	82	$58,433.54

Table B.9 Year 2 E-rate United States Total Services.

SERVICE TYPE	*NUMBER of REQUESTS*	*COMMITTED AMOUNT*
DEDICATED SERVICES	1,842	$3,660,032.97
INTERNAL CONNECTIONS	1,239	$18,485,752.49
INTERNET ACCESS	1,654	$10,651,130.50
TELCOMM SERVICES	7,045	$32,198,759.55
	11,780	$64,995,675.51

Table B.10 Year 3 E-rate United States Total Services.

SERVICE TYPE	*NUMBER of REQUESTS*	*COMMITTED AMOUNT*
INTERNAL CONNECTIONS	323	$11,877,023.61
INTERNET ACCESS	2,285	$19,136,141.36
TELCOMM SERVICES	9,517	$35,077,159.67
	12,125	$66,090,324.64

APPENDIX C: SITE VISIT PARTICIPANTS

Colorado

Colorado State Library
Conejos County Public Library
Douglas Public Library District
Lamar Public Library
Library Research Service
Monte Vista Public Library
Southern Peaks Public Library
Southwest Regional Library Service System (SWRLSS)
Woodruff Memorial Library

Florida

Florida Department of State Division of Library & Information Services
Altha Public Library
Blountstown Public Library
Calhoun County Public Library
Franklin County Public Library
Hialeah Public Libraries
Sheltons Public Library
Wilderness Coast Public Libraries

Michigan

Library of Michigan
ATLAS Committee
Georgetown Township Library
Grand Rapids Public Library
Howe Memorial Library
The Library Network
Michigan Information Network (MIN)
Michigan Library Consortium
Seville Township Public Library
Thompson Home Public Library

Pennsylvania

Commonwealth of Pennsylvania Department
Commonwealth of Pennsylvania Libraries
Abington Community Library
Blasco Memorial Library
Blossburg Memorial Library
James V. Brown Public Library

Carbondale Public Library
Coudersport Public Library
Cumberland County Library System
Dalton Community Library
Dauphin County Library System
Green Public Library
Hanover Public Library
Hawley Public Library
Lackawanna County Library System
Lebanon Community Library
Mansfield Free Public Library
Meadville Public Library
Mifflin County Library
Newport Public Library
Pike County Library
Potter-Tioga County Public Library
Pottsville Public Library
Scranton Public Library
Susquehanna County Library
Ulysses Library Association
Wayne County Public Library

APPENDIX D: SELECTED STUDY INSTRUMENTS

Digital Divide Public Library Manager Interview Questionnaire

Note: Thank you for responding to this survey. The study's purpose is to understand the role of public libraries in providing Internet services and their effects on the digital divide. All responses are confidential and will not be attributed to individuals or libraries. Only aggregate data will be summarized and reported. We ask your name and e-mail because we may want to follow-up with some respondents via e-mail. I may not ask you all of these questions and some questions may not apply to your library. You do not have to answer any of the questions if you do not wish to do so.

1. Your Name: _____ 2. E-mail: _____
3. Library Name: _____ 4. City: _____ 5. State:____
6. Title: _____ 7. Please describe your functional responsibility:

8. Circulation _____ 9. Population served _____ 10. Library web site URL: _____
11. The **maximum speed** of your library's **public access Internet connection** is: (Please select one):

O Less than 56kbps O 56kbps **direct connect** O More than 128kbps but less than 1.5 mbps
O 56kbps **dial-up** O 64kbps-128kbps O 1.5 mbps (T1) O More than 1.5 mbps
O Other (Please describe)

12. Availability of Internet access (speed and cost): 56k Dial up $ 20 ____DSL $____
____Cable $ ____ ____Satellite $ _____ _____Other $ _____

13. # public access Internet workstations____ 14. # needed to meet demand ____ ( ) don't know
15. Comment:

16. Are other groups offering the public Internet access in your area? ( ) yes ( ) no ( ) don't know
17. If yes, identify who these groups are?

18. Name the three most important Internet services your library presently offers?
A. _____ B. _____
C. _____

Funding: 19. Identify, in order of importance to your library or system, external funding and partnerships (e.g., E-rate, Gates, LSTA, local government, non-profit, state agencies, state library aid, other) used to develop library information technology and services?

Funding Source	**Use**	**Changes You Suggest that Funder Make** (E.g. new areas that should be funded or changes in application, administration or evaluation procedures)
A.		
B.		
C.		
D.		
E.		

20. This question asks you to identify the sources that funded your library's Internet technology and services from its beginning to date, or for the most recent year, grouped in the following broad categories: local (municipal and county), state (including relevant state aid), federal (including LSTA, E-rate) and other (e.g., Gates, major donations). Included may be money spent for hardware, software, licensed databases, technology staff, technology training staff, wiring or building or furniture changes due to new technology.

Digital Divide: 21. Identify two ways the library has tried to alter the digital divide?

22. Who are those affected by the digital divide in your community? How do you know? Comment:

23. Identify two next steps to reduce the digital divide in your community? ( )none needed ( )don't know

Evaluation: 24. Was E-rate technology plan useful? ( )yes ( )no ( )don't know. 25. Needed changes:

26. If your governing board asked for evidence of the impact of the library's Internet services what proof would you provide? ( ) not an issue at my library ( ) don't know Comment:

Next Steps: Prioritize your library or system's future need for external funding (e.g., E-rate, Gates, LSTA, local government, state aid, other) to develop library information technology and services? ( )don't know

Future Need	**Priority for External Funding** Compare to Other Tasks Listed 1=high priority 5=not a priority	**Comments**
27. Increase bandwidth to _____	1 2 3 4 5	
28. Replacement equipment & software	1 2 3 4 5	
29. Provide library **staff training** In what areas: _____	1 2 3 4 5	
30. Provide library **user training**. In what areas: _____	1 2 3 4 5	
31. **Promote** use of one or more Internet services. Please identify: _____	1 2 3 4 5	
32. Start a computer lab or community technology center	1 2 3 4 5	
33. Start a new Internet service. Please identify: _____ _____	1 2 3 4 5	
34. Create library produced local content for library web page. In what areas: _____	1 2 3 4 5	
35. Organize existing local content produced by others	1 2 3 4 5	
36. Digitize part of local history collection	1 2 3 4 5	
37. Other. Please identify:	1 2 3 4 5	

38. **Additional Comments?**

State Library Interview Questions

Note: **Thank you** for responding to this survey. All responses are confidential and will not be attributed to individuals or libraries. Only aggregate data will be summarized and reported. We ask your name and e-mail because we may want to follow-up with some respondents via e-mail. The study's purpose is to understand the role of public libraries in providing Internet services and their effects on the digital divide.

1. Your Name: _____ 2. E-mail: _____
3. State:____ 4. Title: _____ 5. Describe your functional responsibility related to public library Internet funding and services:

History of State Library & the Internet: 6. Describe the history of the State Library's role in introducing the Internet and Internet services to public libraries in the state:

7. What major public library information technology and services do you see the State Library taking in the next 3-5 years?

Management: 8. How has State Library management or staffing changed as a result of LSTA, E-rate, or the development of public library Internet services over the past four years? ( ) don't know

9. How is the library development unit structured?

10. Library development has how many staff: ____ 11. How many of those positions funded by LSTA: ___

12. What other State Library units are involved with public library information technology or services?

Funding: **State aid**: 13. How is state aid apportioned (e.g., everyone gets some, some awarded competitively, other)?

14. What are the current requirements to receive state aid?

15. From your perspective, what are key changes needed in how state aid is awarded or administered?

16. What are the most important impacts state aid has had?

LSTA: 17. What is the LSTA portion of total State Library funding? LSTA_____ Total: _____

18. What are the major categories of LSTA funding in the state?
Category Annual Amount Year: _____

19. What role do cooperatives play in LSTA funding?

20. How do you determine the balance between competitive and state-wide awards (like licensed databases)?

21. Describe the competitive award process? Amounts? Time between application and receiving money? Distribution of money (can library receive more up front)?

22. What LSTA awards have you made recently to public libraries related to information technology and services?

23. What do you see as candidates for future state-wide funding? Is there certain information technology or services that every public library in the state should have now or ought to have in the future?

24. Name two aspects of LSTA regulations or procedures that enabled its success? ( ) don't know

25. If you could make two changes to the LSTA program, I would … ( ) don't know

E-rate: 26. What role did the State Library play in helping public libraries obtain universal service (E-rate) funding?

27. What should be the State Library role in the future?

28. Name the two most important contributions E-rate discounts have made to public libraries in the state?
( ) don't know

29. What changes should be made to the E-rate program?

Other Grants: 30. Are there other major sources of external funding that public libraries in the state used for IT development? ( )yes ( )no ( )don't know

	Funding source	Principal contribution
A.	_____	_____
B.	_____	_____

31. What role did the State Library play vis-à-vis these major external funding sources?

Partnerships: 32. What other units within the state library or in state government have had a role in the development of public library Internet services?

Unit of State Government	Role

33. Are there units of state government that you would like to partner with to develop Internet services in the future?

34. Is there someone at the State Library that actively/systematically seeks partnerships with other units of state government for public libraries in the state?

35. Is there a role for the State Library in aiding public libraries in developing partnerships with other units of county and local governments?

Digital Divide: 36. Identify two ways that the state library has sought to reduce the digital divide?
( ) library has not made an effort ( ) don't know

37. Identify two needed next steps for the state library to take to reduce the digital divide?
() none needed ( ) don't know

38. In your judgment, would the majority of public libraries in the state apply for E-rate discounts and/or LSTA funds if required to use filtering software? ( ) yes ( ) no ( ) don't know Comment:

Evaluation: 39. If the state legislature or federal funders asked for evidence of the impact of the library's Internet services, what proof would you provide? ( ) not an issue at my library ( ) don't know Comment:

Recommendations: 40. Do you have general recommendations for my report or to improve federal funding of public library information technology and services (specifically the E-rate and LSTA programs)?

41. **Additional Comments?**

Florida Information Technology Manager and the Digital Divide Questionnaire

Note: Thank you for responding to this survey. All responses are confidential and will not be attributed to individuals or libraries. Only aggregate data will be summarized and reported. The purpose of the study is to better understand Information Technology development in Florida. THANKS for responding.

1. Library Name: _____ 2. City: _____ 3. State: FL
4. Area of Responsibility: ( ) Admin. ( ) IT Staff ( ) Public Services ( ) Other:_____
5. Does your library have a web page? ( ) yes ( ) no ( ) don't know 8.Web URL: _____
6. Number of public access Internet workstations at your library: _____ (please fill in) ( ) don't know.

7. The **maximum speed** of your library's **public access Internet connection** is: (Please select one):

O Less than 56kbps O 56kbps **direct connect** O More than 128kbps but less than 1.5 mbps
O 56kbps **dial-up** O 64kbps-128kbps O 1.5 mbps (T1) O More than 1.5 mbps
O Other (Please describe)

8. Name the three most important **Internet services** your library offers?
A. _____ B. _____
C. _____

E-rate: 9. Has your library applied for E-rate discounts during any of the last 3 years?
( ) yes ( ) no ( ) don't know

10. If no, why did your library not apply?

11. If yes, name the two most important contributions E-rate discounts have made?
A. _____ B. _____

12. If you could make two changes to the E-rate program, I would … ( ) don't know
A. _____ B. _____

LSTA: 13. Has your library received LSTA awards during any of the past 3 years?
( ) yes ( )no ( ) don't know

14. If no, why not?

15. If yes, name the two most important contributions LSTA awards have made?
A. _____ B. _____

16. If you could make two changes to the LSTA program, I would … ( ) don't know
A. _____ B. _____

Gates Grants: 17. Identify the two most important contributions the Gates Foundation grants have made?
( ) did not receive () don't know
A. _____ B. _____

State Funds for Technology: Has your library received State Library aid that has been used for information technology development over the past three years? ( ) yes ( ) no ( ) don't know

18. If yes, name the two most important contributions the State Library aid for technology development has made?
A. _____

B. _____

19. If you could make two changes to the state library aid program, I would … ( ) don't know
A. _____ B. _____

Other Funds: 20. Identify other major funding (e.g., foundation or other grant opportunities) for information technology development over the past 3 years. ( ) No other funds used ( ) don't know

Funding source	Principal contribution
A. _____	_____
B. _____	_____

Digital Divide: 21. Identify two ways in which the library has sought to reduce the digital divide?
( ) library has not made an effort ( ) don't know
A. _____ B. _____

22. In your judgment, would your library apply for E-rate discounts and/or LSTA funds if required to use filtering software? ( ) yes ( ) no ( ) don't know

Evaluation: 23. If your governing board asked for evidence of the impact of the library's Internet services what proof would you provide? ( ) not an issue at my library ( ) don't know
A. _____ B. _____

24. Has your library evaluated the use/impact of its Internet services? ( ) yes ( ) no ( ) don't know
If yes, identify the two most important measures used to evaluate the library's Internet services?
A. _____ B. _____

Future Information Technology Development Needs: Please complete the following chart:

Needed Task	**Priority** 1=high priority 5=not a priority	**Who should fund?** E=E-rate, LTA=LSTA, SL=State Library, L=Local, P=Private, O=Other DK=Don't Know
24. Replacement costs to maintain existing IT at current levels of service	1 2 3 4 5	E LTA SL SL L P O DK
25. Library staff training related to new technology or services	1 2 3 4 5	E LTA SL SL L P O DK
26. Promotion of library Internet services to the public	1 2 3 4 5	E LTA SL SL L P O DK
27. Library operated community technology center (Internet workstation lab)	1 2 3 4 5	E LTA SL SL L P O DK
28. Library originated web services (to include technology, training, seed money for local content production, etc.)	1 2 3 4 5	E LTA SL SL L P O DK
29. Access to additional licensed databases	1 2 3 4 5	E LTA SL SL L P O DK
30. Proof of concept of new Internet technology or services	1 2 3 4 5	E LTA SL SL L P O DK
31. Other:	1 2 3 4 5	E LTA SL SL L P O DK

32. Additional Comments about Information Technology Development at Your Library?

APPENDIX E: ADVISORY COMMITTEE MEMBERS

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